AIWA®

S/M Code No. 85-011
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SERVICE MANUAL

STEREO PREAMPLIFIER

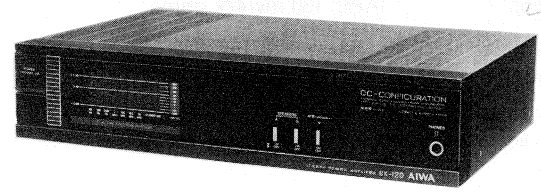
MODEL NO.

GX-120

STEREO POWER AMPLIFIER

MODEL NO.

BX-120

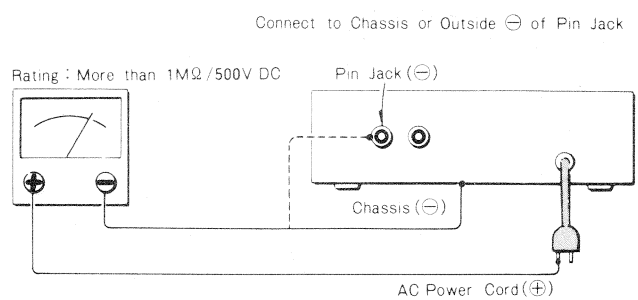


TYPE. HB, UB, EB, KB, ZB

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of serivce.

1. **No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.**
2. **No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.**
3. **When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.**
4. **The following matters shall be maintained as they are, when repairing.**
   1) Soldering of lead-wire ends
      * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
   2) Wiring and holding of lead-wires with wire-clips and binders
   3) Materials of lead-wires
      * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
   4) Location of all kinds of insulators
   5) Setting of voltage selector switch
      * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. **After repaired, the insulation resistance or leakage current shall be measured with 500 ± 5V D.C and shall be not less than 1MΩ.**

   Measuring Point



6. **General instructions for mechanism repair**
   1) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
   2) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, mulfunction and damage.

SPECIFICATIONS

GX-120

Total harmonic distortion:
TUNER, AUX, TAPE PLAY, CD
0.02% (1 kHz)
PHONO (MM)
0.01% (1 kHz, REC OUT)

Frequency response: 30 Hz to 50 kHz
(+0.5/−3 dB)

S/N ratio: IHF A curve short circuited
GX-120E, H, K, G, U
PHONO (MM) 80 dB
TUNER, AUX, TAPE 83 dB
GX-120Z
PHONO (MM) 76 dB
TUNER, AUX, TAPE 83 dB

Input jacks (Sensitivity/input impedance):
PHONO (MM)
3 mV/47k ohms
TUNER
150 mV/47k ohms
CD
320 mV/27k ohms
TAPE
150 mV/47k ohms
AUX
150 mV/47k ohms
MIC
1 mV/10 kOhm

Output jacks (Level/output impedance):
TAPE: 130 mV/47k ohms
(REC OUT)
OUTPUT: 1 V/47k ohms

RIAA deviation: ±0.5 dB (20 Hz ~ 20 kHz)

- Design and specifications are subject to change without notice.

BX-120

Effective output power: BX-120H
100W+100W (10%, 8 ohms)
BX-120G, E, K, Z
75W+75W (0.009%, 1 kHz, 8 ohms)
<FTC Rule U mode only>
75 Watts per channel, Min. RMS at 8 ohms, from 20 Hz—20 kHz, with no more than 0.02% Total Harmonic Distortion.

Total harmonic distortion:
0.01% (50W+50W, 20 Hz—20 kHz, 8 ohms)

Frequency response: 10 Hz to 50 kHz (−1 dB)

S/N ratio: IHF 110 dB, A curve short circuited

Input jacks (Sensitivity/input impedance): BX-120H
1V/47k ohms
BX-120G, E, K, Z, U
800 mV/47k ohms

Output jacks (Level/output impedance):
Headphones 1 mW/1 W (8Ω)
Speakers (A or B) 8 to 16 ohms
Speakers (A+B) 16 ohms

Damping Factor: More than 30 (8 ohms, 1 kHz)

Power requirements: BX-120U
AC 120V, 60 Hz
BX-120G, K
AC 240V, 50/60 Hz
BX-120H
AC 120V/220V/240V switchable, 50/60 Hz
BX-120E, Z
AC 220V, 50/60 Hz

Power consumption: BX-120G, E, K, Z
350 W
BX-120U
100 W
BX-120H
118 W

Dimensions: 300 (W) × 71 (H) × 200 (D) mm

Weight: 4.5 kg

- Design and specifications are subject to change without notice.

ELECTRICAL MAIN PARTS LIST (GX-120)

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- * -mark means less required items and availabilities may be limited.

CAPACITORS No mark, U, UF: μF P, PF : pF
COILS MMH: mH UH : μH
FUSE MMA:mA

Ref. No.	Part No.	Description
=== IC ===		
	87-020-291	IC,BA3812L
	87-027-350	IC,IR2406G
	87-027-895	IC,M5218L
	87-027-925	IC,M5220
	87-020-145	IC,M54563
ϟ	87-020-379	IC,MN6632
	87-027-986	IC,NJM4560
ϟ	87-027-989	IC,TC4027BP
ϟ	87-020-039	IC,TC4051BP
ϟ	87-027-656	IC,TC4066BP
ϟ	87-027-978	IC,TC9152P
=== TRANSISTOR ===		
	89-110-155	TRANSISTOR,2SA1015,GR
	89-210-670	TRANSISTOR,2SB1067
	89-318-155	TRANSISTOR,2SC1815,GR
	89-320-011	TRANSISTOR,2SC2001K
	89-309-456	TRANSISTOR,2SC945L,P
	89-408-804	TRANSISTOR,2SD880,Y
=== MAIN CIRCUIT BOARD SECTION ===		
PCB-A	*	MAIN CIRCUIT BOARD
C3	* 87-018-036	CAP,CERA-SOL S 220P
C4	* 87-018-036	CAP,CERA-SOL S 220P
C7	* 87-018-024	CAP,CERA-SOL S 47P
C8	* 87-018-024	CAP,CERA-SOL S 47P
C53	* 87-018-044	CAP,CERA-SOL S 1000P
C63	* 87-018-035	CAP,CERA-SOL 180P
C64	* 87-018-035	CAP,CERA-SOL 180P
C71	* 87-018-044	CAP,CERA-SOL S 1000P
C73	* 87-018-042	CAP,CERA-SOL S 680P
C201	* 87-012-110	CAP,BEAD 270P (Z ONLY)
C202	* 87-012-110	CAP,BEAD 270P (Z ONLY)
C203	* 87-018-115	CAP,CERA-SOL 47P (Z ONLY)
C204	* 87-018-115	CAP,CERA-SOL 47P (Z ONLY)
C205	* 87-018-121	CAP,CERA-SOL 150P (Z ONLY)
C206	* 87-018-121	CAP,CERA-SOL 150P (Z ONLY)
C207	* 87-018-121	CAP,CERA-SOL 150P (Z ONLY)
C208	* 87-018-121	CAP,CERA-SOL 150P (Z ONLY)
C209	* 87-018-121	CAP,CERA-SOL 150P (Z ONLY)
C210	* 87-018-121	CAP,CERA-SOL 150P (Z ONLY)
D1	87-020-401	DIODE,1SS176
D2	87-020-401	DIODE,1SS176
D3	87-027-225	DIODE,ZENER 05Z-5.1L(TP)
D5	87-020-401	DIODE,1SS176
D6	87-020-401	DIODE,1SS176
D7	87-020-401	DIODE,1SS176
D8	87-020-401	DIODE,1SS176
D9	87-020-401	DIODE,1SS176
D10	87-020-401	DIODE,1SS176
D11	87-020-401	DIODE,1SS176
D12	87-020-401	DIODE,1SS176
D13	87-020-401	DIODE,1SS176
D14	87-020-401	DIODE,1SS176
D15	87-020-401	DIODE,1SS176
D16	87-020-401	DIODE,1SS176
D17	87-020-401	DIODE,1SS176
D18	87-027-393	DIODE,ZENER HZ4C2
D19	87-020-401	DIODE,1SS176
D20	87-027-555	DIODE,ZENER HZ5C2
D21	87-020-401	DIODE,1SS176

Ref. No.	Part No.	Description
D22	87-020-401	DIODE,1SS176
D23	87-027-606	DIODE,ZENER HZ7C2L
D24	87-020-401	DIODE,1SS176
D25	87-020-401	DIODE,1SS176
D26	87-020-401	DIODE,1SS176
D27	87-020-401	DIODE,1SS176
D28	87-020-401	DIODE,1SS176
D29	87-027-555	DIODE,ZENER HZ5C2
D30	87-020-401	DIODE,1SS176
D32	87-020-401	DIODE,1SS176
D33	87-020-401	DIODE,1SS176
D35	87-020-401	DIODE,1SS176
D36	87-027-405	DIODE,ZENER RD2.2EB
D37	87-020-401	DIODE,1SS176
D38	87-020-401	DIODE,1SS176
D39	87-020-401	DIODE,1SS176
D40	87-027-431	DIODE,ZENER RD-6.2EB
D41	87-020-401	DIODE,1SS176
D42	87-020-401	DIODE,1SS176
D43	87-020-401	DIODE,1SS176
D45	87-020-401	DIODE,1SS176
D51	87-027-475	DIODE,ZENER HZ-6B1
D65	87-020-401	DIODE,1SS176
D66	87-027-606	DIODE,ZENER HZ7C2L
D67	87-027-475	DIODE,ZENER HZ-6B1
D68	87-020-401	DIODE,1SS176
D69	87-020-401	DIODE,1SS176
D70	87-020-401	DIODE,1SS176
D71	87-027-431	DIODE,ZENER RD-6.2EB
D72	87-020-400	DIODE,1SR35-200
D73	87-027-376	DIODE,1B4B41
D74	87-027-393	DIODE,ZENER HZ4C2
J1	* 87-049-450	PIN JACK,4P (PHONO)
J2	+++	PIN JACK,4P (CD)
J3	* 87-049-420	PIN JACK 4P-14 (AUX)
J4	+++	PIN JACK 4P-14 (REC OUT)
J5	81-739-630	JACK,ASSY (PLAYER SYNC)
J6	+++	JACK,ASSY (REC/PLAY)
J7	+++	JACK,ASSY (CONTROL)
J8	+++	JACK,ASSY (TUNER)
J9	+++	JACK,ASSY (CD SYNC)
J10	+++	JACK,ASSY (VIDEO SYNC)
J11	+++	JACK,ASSY (OUTPUT)
J12	82-137-609	13P SOCKET (REMOTE CONTROL)
J13	82-675-661	JACK 6.3 (HP) (MIX MIC)
SW1	81-739-640	PUSH SW 3 (REC OUT)
SW2	+++	PUSH SW 3 (MUTE)
SW5	+++	PUSH SW 3 (DSL)
VR1	87-021-922	VOLUME 50KW (BALANCE)
VR2	87-021-921	VOLUME 10KB (MIC VOLUME)
=== FRONT CIRCUIT BOARD SECTION ===		
PCB-B	81-740-620	FRONT CIRCUIT BOARD
C141	* 87-015-696	CAP,ELECT 2.2-50
C142	* 87-015-696	CAP,ELECT 2.2-50
C145	* 87-015-431	CAP,AL 0.68-25
C146	* 87-015-431	CAP,AL 0.68-25
C155	* 87-018-040	CAP,CERA-SOL S 470P
C156	* 87-018-040	CAP,CERA-SOL S 470P
C159	* 87-018-036	CAP,CERA-SOL S 220P
C160	* 87-018-036	CAP,CERA-SOL S 220P
C161	* 87-015-698	CAP,ELECT 4.7-50
C162	* 87-015-698	CAP,ELECT 4.7-50
C169	* 87-018-032	CAP,CERA-SOL S 100P

Ref. No.	Part No.	Description
C170	* 87-018-032	CAP,CERA-SOL S 100P
C171	* 87-015-679	CAP,ELECT,33-10
C172	* 87-015-679	CAP,ELECT,33-10
C173	* 87-015-698	CAP,ELECT 4.7-50
C174	* 87-015-698	CAP,ELECT 4.7-50
C175	* 87-015-691	CAP,ELECT 0.1-50
C177	* 87-015-692	CAP,ELECT 0.22-50V
C178	* 87-015-692	CAP,ELECT 0.22-50V
D34	* 87-027-889	LED LN342GP (TAPE)
D35	* 87-027-889	LED LN342GP (TUNER)
D36	* 87-027-889	LED LN342GP (AUX)
D37	* 87-027-889	LED LN342GP (PHONO)
D38	* 87-027-889	LED LN342GP (CD)
D40	* 87-020-393	LED,TLR-206RPH (MUTE)
D41	* 87-020-393	LED,TLR-206RPH (DSL)
D42	* 87-020-393	LED,TLR-206RPH (GE)
D43	87-020-401	DIODE,1SS176
D44	87-020-401	DIODE,1SS176
D45	87-020-401	DIODE,1SS176
D46	87-020-401	DIODE,1SS176
D47	87-020-401	DIODE,1SS176
D80	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D81	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D82	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D83	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D84	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D85	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D86	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D87	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D88	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D89	* 87-020-399	LED,LN350GPH (VOLUME LEVEL)
SW10	87-031-897	PUSH SW,SEA (POWER STANDBY/ON)
SW15	87-031-771	TACT SW EVQ-QSK04M (VOLUME-UP)
SW16	87-031-771	TACT SW EVQ-QSK04M (VOLUME-DOWN)
SW17	87-031-771	TACT SW EVQ-QSK04M (TAPE)
SW18	87-031-771	TACT SW EVQ-QSK04M (PHONO)
SW19	87-031-771	TACT SW EVQ-QSK04M (TUNER)
SW20	87-031-771	TACT SW EVQ-QSK04M (AUX)
SW21	87-031-771	TACT SW EVQ-QSK04M (CD)
VR15	87-021-898	SLIDE VOLUME 100KB (40HZ)
VR16	87-021-898	SLIDE VOLUME 100KB (125HZ)
VR17	87-021-898	SLIDE VOLUME 100KB (330HZ)
VR18	87-021-898	SLIDE VOLUME 100KB (1KHZ)
VR19	87-021-898	SLIDE VOLUME 100KB (2.5KHZ)
VR20	87-021-898	SLIDE VOLUME 100KB (6.3KHZ)
VR21	87-021-898	SLIDE VOLUME 100KB (15KHZ)
=== POWER CIRCUIT BOARD SECTION ===		
PCB-C	*	POWER CIRCUIT BOARD
⚠CR1	* 87-019-110	SPARK KILLER 0.01 D
⚠F1	87-035-139	FUSE T2.5A (E,Z ONLY)
⚠J14	* 87-049-017	AC OUTLET (H,U ONLY)
⚠J15	* +++	AC OUTLET (H,U ONLY)
⚠J14	* 87-049-416	AC OUTLET (K ONLY)
⚠J15	* +++	AC OUTLET (K ONLY)
⚠J14	* 87-049-514	AC OUTLET (E,Z ONLY)
⚠J15	* +++	AC OUTLET (E,Z ONLY)
=== MISCELLANEOUS ===		
⚠	87-034-992	AC CORD (H) (H ONLY)
⚠	87-303-578	AC CORD (U) (U ONLY)

Ref. No.	Part No.	Description
⚠	82-788-674	AC CORD (E) (E,Z ONLY)
⚠	87-034-708	AC CORD (K) (K ONLY)
⚠	* 87-085-139	AC CORD BUSHING D (H,U ONLY)
⚠	* 87-085-185	AC CORD BUSHING (E,K,Z ONLY)
⚠SW22	87-031-685	ROTARY SW (VOLTAGE SELECTOR) (H ONLY)
⚠T1	81-739-641	TRANSFORMER P.T (H) (H ONLY)
⚠T1	81-731-607	TRANSFORMER P.T (U) (U ONLY)
⚠T1	81-731-608	TRANSFORMER P.T (E) (E,Z ONLY)
⚠T1	81-731-609	TRANSFORMER P.T (K) (K ONLY)

Ref. No.	Part No.
=== IC ===	
	87-020-431 IC
ϟ	87-027-298 IC
	87-020-429 IC
	87-027-895 IC
	87-027-986 IC
	87-020-162 IC
ϟ	87-020-207 IC
ϟ	87-027-656 IC
	87-027-787 IC
=== TRANSISTOR ===	
	* 89-503-890 FE
	89-110-155 TR
	89-110-203 TR
	89-111-246 TR
	89-206-882 TR
	89-318-155 TR
	89-318-154 TR
	89-320-011 TR
	89-326-326 TR
	89-326-553 TR
	89-333-810 TR
	89-407-182 TR
	89-412-753 TR
	89-413-023 TR
=== MAIN CIRCUIT BOARD S	
PCB-A	* MA
C92	* 87-018-131 CA
C93	* 87-015-450 CA
C171	* 87-010-276 CA
C172	* 87-010-275 CA
C173	* 87-010-276 CA
C174	* 87-010-275 CA
C181	* 89-663-815 CA
C201	* 87-010-035 CA
D25	87-020-110 DI
D26	87-020-110 DI
D30	87-027-369 DI
D31	87-020-110 DI
D32	87-020-110 DI
D33	87-020-110 DI
D34	87-020-400 DI
D48	87-020-400 DI
D49	87-027-788 DI
D51	87-020-400 DI
D52	87-020-400 DI
D53	87-020-110 DI
D54	87-020-110 DI
D55	87-027-097 DI
D56	87-027-555 DI
D57	87-027-686 DI
D58	87-020-110 DI
D59	87-020-110 DI
D60	87-020-110 DI
D61	87-020-110 DI
D62	87-020-110 DI
D63	87-020-110 DI
D64	87-027-479 DI
J1	81-738-630 JA
J3	+++ JA

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- ★ -mark means less required items and availabilities may be limited.

CAPACITORS No mark, U, UF: μF P, PF : pF

COILS MMH: mH UH : μH

FUSE MMA:mA

ELECTRICAL MAIN PARTS LIST (BX-120)

Ref. No.	Part No.	Description
D22	87-020-401	DIODE,1SS176
D23	87-027-606	DIODE,ZENER HZ7C2L
D24	87-020-401	DIODE,1SS176
D25	87-020-401	DIODE,1SS176
D26	87-020-401	DIODE,1SS176
D27	87-020-401	DIODE,1SS176
D28	87-020-401	DIODE,1SS176
D29	87-027-555	DIODE,ZENER HZ5C2
D30	87-020-401	DIODE,1SS176
D32	87-020-401	DIODE,1SS176
D33	87-020-401	DIODE,1SS176
D35	87-020-401	DIODE,1SS176
D36	87-027-405	DIODE,ZENER RD2.2EB
D37	87-020-401	DIODE,1SS176
D38	87-020-401	DIODE,1SS176
D39	87-020-401	DIODE,1SS176
D40	87-027-431	DIODE,ZENER RD-6.2EB
D41	87-020-401	DIODE,1SS176
D42	87-020-401	DIODE,1SS176
D43	87-020-401	DIODE,1SS176
D45	87-020-401	DIODE,1SS176
D51	87-027-475	DIODE,ZENER HZ-6B1
D65	87-020-401	DIODE,1SS176
D66	87-027-606	DIODE,ZENER HZ7C2L
D67	87-027-475	DIODE,ZENER HZ-6B1
D68	87-020-401	DIODE,1SS176
D69	87-020-401	DIODE,1SS176
D70	87-020-401	DIODE,1SS176
D71	87-027-431	DIODE,ZENER RD-6.2EB
D72	87-020-400	DIODE,1SR35-200
D73	87-027-376	DIODE,1B4B41
D74	87-027-393	DIODE,ZENER HZ4C2
J1	★ 87-049-450	PIN JACK,4P (PHONO)
J2	+++	PIN JACK,4P (CD)
J3	★ 87-049-420	PIN JACK 4P-14 (AUX)
J4	+++	PIN JACK 4P-14 (REC OUT)
J5	81-739-630	JACK,ASSY (PLAYER SYNC)
J6	+++	JACK,ASSY (REC/PLAY)
J7	+++	JACK,ASSY (CONTROL)
J8	+++	JACK,ASSY (TUNER)
J9	+++	JACK,ASSY (CD SYNC)
J10	+++	JACK,ASSY (VIDEO SYNC)
J11	+++	JACK,ASSY (OUTPUT)
J12	82-137-609	13P SOCKET (REMOTE CONTROL)
J13	82-675-661	JACK 6.3 (HP) (MIX MIC)
SW1	81-739-640	PUSH SW 3 (REC OUT)
SW2	+++	PUSH SW 3 (MUTE)
SW5	+++	PUSH SW 3 (DSL)
VR1	87-021-922	VOLUME 50KW (BALANCE)
VR2	87-021-921	VOLUME 10KB (MIC VOLUME)

=== FRONT CIRCUIT BOARD SECTION ===

PCB-B	81-740-620	FRONT CIRCUIT BOARD
C141	★ 87-015-696	CAP,ELECT 2.2-50
C142	★ 87-015-696	CAP,ELECT 2.2-50
C145	★ 87-015-431	CAP,AL 0.68-25
C146	★ 87-015-431	CAP,AL 0.68-25
C155	★ 87-018-040	CAP,CERA-SOL S 470P
C156	★ 87-018-040	CAP,CERA-SOL S 470P
C159	★ 87-018-036	CAP,CERA-SOL S 220P
C160	★ 87-018-036	CAP,CERA-SOL S 220P
C161	★ 87-015-698	CAP,ELECT 4.7-50
C162	★ 87-015-698	CAP,ELECT 4.7-50
C169	★ 87-018-032	CAP,CERA-SOL S 100P

Ref. No.	Part No.	Description
C170	★ 87-018-032	CAP,CERA-SOL S 100P
C171	★ 87-015-679	CAP,ELECT,33-10
C172	★ 87-015-679	CAP,ELECT,33-10
C173	★ 87-015-698	CAP,ELECT 4.7-50
C174	★ 87-015-698	CAP,ELECT 4.7-50
C175	★ 87-015-691	CAP,ELECT 0.1-50
C177	★ 87-015-692	CAP,ELECT 0.22-50V
C178	★ 87-015-692	CAP,ELECT 0.22-50V
D34	★ 87-027-889	LED LN342GP (TAPE)
D35	★ 87-027-889	LED LN342GP (TUNER)
D36	★ 87-027-889	LED LN342GP (AUX)
D37	★ 87-027-889	LED LN342GP (PHONO)
D38	★ 87-027-889	LED LN342GP (CD)
D40	★ 87-020-393	LED,TLR-206RPH (MUTE)
D41	★ 87-020-393	LED,TLR-206RPH (DSL)
D42	★ 87-020-393	LED,TLR-206RPH (GE)
D43	87-020-401	DIODE,1SS176
D44	87-020-401	DIODE,1SS176
D45	87-020-401	DIODE,1SS176
D46	87-020-401	DIODE,1SS176
D47	87-020-401	DIODE,1SS176
D80	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D81	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D82	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D83	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D84	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D85	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D86	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D87	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D88	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
D89	★ 87-020-399	LED,LN350GPH (VOLUME LEVEL)
SW10	87-031-897	PUSH SW,SEA (POWER STANDBY/ON)
SW15	87-031-771	TACT SW EVQ-QSK04M (VOLUME-UP)
SW16	87-031-771	TACT SW EVQ-QSK04M (VOLUME-DOWN)
SW17	87-031-771	TACT SW EVQ-QSK04M (TAPE)
SW18	87-031-771	TACT SW EVQ-QSK04M (PHONO)
SW19	87-031-771	TACT SW EVQ-QSK04M (TUNER)
SW20	87-031-771	TACT SW EVQ-QSK04M (AUX)
SW21	87-031-771	TACT SW EVQ-QSK04M (CD)
VR15	87-021-898	SLIDE VOLUME 100KB (40HZ)
VR16	87-021-898	SLIDE VOLUME 100KB (125HZ)
VR17	87-021-898	SLIDE VOLUME 100KB (330HZ)
VR18	87-021-898	SLIDE VOLUME 100KB (1KHZ)
VR19	87-021-898	SLIDE VOLUME 100KB (2.5KHZ)
VR20	87-021-898	SLIDE VOLUME 100KB (6.3KHZ)
VR21	87-021-898	SLIDE VOLUME 100KB (15KHZ)

=== POWER CIRCUIT BOARD SECTION ===

PCB-C	★	POWER CIRCUIT BOARD
⚠CR1	★ 87-019-110	SPARK KILLER 0.01 D
⚠F1	87-035-139	FUSE T2.5A (E,Z ONLY)
⚠J14	★ 87-049-017	AC OUTLET (H,U ONLY)
⚠J15	★ +++	AC OUTLET (H,U ONLY)
⚠J14	★ 87-049-416	AC OUTLET (K ONLY)
⚠J15	★ +++	AC OUTLET (K ONLY)
⚠J14	★ 87-049-514	AC OUTLET (E,Z ONLY)
⚠J15	★ +++	AC OUTLET (E,Z ONLY)

=== MISCELLANEOUS ===

⚠	87-034-992	AC CORD (H) (H ONLY)
⚠	87-303-578	AC CORD (U) (U ONLY)

Ref. No.	Part No.	Description
⚠	82-788-674	AC CORD (E) (E,Z ONLY)
⚠	87-034-708	AC CORD (K) (K ONLY)
⚠	★ 87-085-139	AC CORD BUSHING D (H,U ONLY)
⚠	★ 87-085-185	AC CORD BUSHING (E,K,Z ONLY)
⚠SW22	87-031-685	ROTARY SW (VOLTAGE SELECTOR) (H ONLY)
⚠T1	81-739-641	TRANSFORMER P.T (H) (H ONLY)
⚠T1	81-731-607	TRANSFORMER P.T (U) (U ONLY)
⚠T1	81-731-608	TRANSFORMER P.T (E) (E,Z ONLY)
⚠T1	81-731-609	TRANSFORMER P.T (K) (K ONLY)

=== IC ===

87-020-431	IC,BA658
⚡ 87-027-298	IC,C-MOS4001 NOR
87-020-429	IC,LB1290
87-027-895	IC,M5218L
87-027-986	IC,NJM4560
87-020-162	IC,STK1070
⚡ 87-020-207	IC,TC4022BP
⚡ 87-027-656	IC,TC4066BP
87-027-787	IC,UPC1237H

=== TRANSISTOR ===

★ 89-503-890	FET 2SK389
89-110-155	TRANSISTOR,2SA1015,GR
89-110-203	TRANSISTOR,2SA1020,O (EXCEPT H)
89-111-246	TRANSISTOR,2SA1124,R
89-206-882	TRANSISTOR,2SB688 (EXCEPT H)
89-318-155	TRANSISTOR,2SC1815,GR
89-318-154	TRANSISTOR,2SC1815,Y
89-320-011	TRANSISTOR,2SC2001K
89-326-326	TRANSISTOR,2SC2632,R
89-326-553	TRANSISTOR,2SC2655(O) (EXCEPT H)
89-333-810	TRANSISTOR,2SC3381
89-407-182	TRANSISTOR,2SD718 (EXCEPT H)
89-412-753	TRANSISTOR,2SD1275
89-413-023	TRANSISTOR,2SD1302S

=== MAIN CIRCUIT BOARD SECTION ===

PCB-A	★	MAIN CIRCUIT BOARD
C92	★ 87-018-131	CAP,CERA-SOL SS 1000P
C93	★ 87-015-450	CAP,ELECT 220-25V BP
C171	★ 87-010-276	CAP,ELECT 56V-5600
C172	★ 87-010-275	CAP,ELECT 56V-8200
C173	★ 87-010-276	CAP,ELECT 56V-5600
C174	★ 87-010-275	CAP,ELECT 56V-8200
C181	★ 89-663-815	CAP,CERA-SOL 0.01UF
C201	★ 87-010-035	CAP,ELECT 2.2/50V
D25	87-020-110	DIODE,1SS177
D26	87-020-110	DIODE,1SS177
D30	87-027-369	DIODE,ZENER 05Z-6.2L
D31	87-020-110	DIODE,1SS177
D32	87-020-110	DIODE,1SS177
D33	87-020-110	DIODE,1SS177
D34	87-020-400	DIODE,1SR35-200
D48	87-020-400	DIODE,1SR35-200
D49	87-027-788	DIODE,D5FB20
D51	87-020-400	DIODE,1SR35-200
D52	87-020-400	DIODE,1SR35-200
D53	87-020-110	DIODE,1SS177
D54	87-020-110	DIODE,1SS177
D55	87-027-097	DIODE,1S1555
D56	87-027-555	DIODE,ZENER HZ5C2
D57	87-027-686	DIODE,ZENER HZ12A1
D58	87-020-110	DIODE,1SS177
D59	87-020-110	DIODE,1SS177
D60	87-020-110	DIODE,1SS177 (EXCEPT H)
D61	87-020-110	DIODE,1SS177 (EXCEPT H)
D62	87-020-110	DIODE,1SS177 (EXCEPT H)
D63	87-020-110	DIODE,1SS177 (EXCEPT H)
D64	87-027-479	DIODE,ZENER HZ27-2 (EXCEPT H)
J1	81-738-630	JACK PLATE,ASSY (INPUT)
J3	+++	JACK PLATE,ASSY (SPEAKERS A(L))

Ref. No.	Part No.	Description
J4	+++	JACK PLATE,ASSY (SPEAKERS A(R))
J2	87-049-360	JACK6.3 (PHONES)
J5	* 81-738-631	SPEAKER-TERMINAL (SPEAKERS B)
L1	* 87-005-158	INDUCTOR 1UH
L2	* 87-005-158	INDUCTOR 1UH
⚠R139	* 87-025-347	RES,MFO 2W10 (F)
⚠R140	* 87-025-347	RES,MFO 2W10 (F)
⚠R223	* 87-025-348	RES,NONFLAM 1W270
⚠R224	* 87-025-348	RES,NONFLAM 1W270
⚠R231	* 87-025-397	RES,NONFLAM 1K 2W
⚠R232	* 87-025-397	RES,NONFLAM 1K 2W
⚠R301	* 87-029-383	RES,FUSIBLE 1W-3.3
⚠R302	* 87-029-383	RES,FUSIBLE 1W-3.3
RY1	* 87-045-224	RELAY G2R 24V-2
RY2	* 87-045-223	RELAY G4W 24V-2
S1	87-031-892	SW SUL (AFBS(SPEAKER A))
S5	+++	SW SUL (SPEAKERS A)
S6	+++	SW SUL (SPEAKERS B)
=== FRONT CIRCUIT BOARD SECTION ===		
PCB-B	*	FRONT CIRCUIT BOARD
C105	* 87-015-692	CAP,ELECT 0.22-50
C106	* 87-015-692	CAP,ELECT 0.22-50
C107	* 87-015-696	CAP,ELECT 2.2-50
C108	* 87-015-694	CAP,ELECT 0.47-50V
C111	* 87-015-696	CAP,ELECT 2.2-50
C112	* 87-015-694	CAP,ELECT 0.47-50V
C115	* 87-015-696	CAP,ELECT 2.2-50
C116	* 87-015-694	CAP,ELECT 0.47-50V
C119	* 87-015-696	CAP,ELECT 2.2-50
C120	* 87-015-694	CAP,ELECT 0.47-50V
C123	* 87-015-696	CAP,ELECT 2.2-50
C124	* 87-015-694	CAP,ELECT 0.47-50V
C125	* 87-018-129	CAP,CERA-SOL 680P
C126	* 87-018-129	CAP,CERA-SOL 680P
C127	* 87-015-696	CAP,ELECT 2.2-50
C128	* 87-015-694	CAP,ELECT 0.47-50V
C129	* 87-018-124	CAP,CERA-SOL SS 270P
C130	* 87-018-124	CAP,CERA-SOL SS 270P
C131	* 87-015-696	CAP,ELECT 2.2-50
C132	* 87-015-694	CAP,ELECT 0.47-50V
C133	* 87-015-696	CAP,ELECT 2.2-50
C134	* 87-015-691	CAP,ELECT 0.1-50
C135	* 87-015-694	CAP,ELECT 0.47-50V
C137	* 87-015-690	CAP,ELECT 22-35V
C138	* 87-015-682	CAP,ELECT 22-16
C144	* 87-018-127	CAP,CERA-SOL SS 470P
C146	* 87-018-130	CAP,CERA-SOL 820P
C147	* 87-015-691	CAP,ELECT 0.1-50
C151	* 87-015-689	CAP,ELECT 35-10V
D35	87-020-110	DIODE,1SS177
D36	87-020-110	DIODE,1SS177
D37	87-020-110	DIODE,1SS177
D38	87-020-110	DIODE,1SS177
D39	87-020-110	DIODE,1SS177
D40	87-020-110	DIODE,1SS177
D41	87-020-110	DIODE,1SS177
D42	87-020-110	DIODE,1SS177
D43	* 87-020-393	LED,TLR-206RPH (AFBS(SPEAKER A))
D45	87-027-686	DIODE,ZENER HZ12A1
D46	87-020-110	DIODE 1SS177
D47	87-020-110	DIODE,1SS177
FL	* 81-738-640	FL,CP1057GR
⚠R229	* 87-029-390	RES,FUSIBLE 120 1/4W

Ref. No.	Part No.	Description
⚠S11	87-031-897	PUSH SW,SEA (POWER STANDBY/ON)
=== DRIVER-1 CIRCUIT BOARD SECTION ===		
PCB-C	*	DRIVER-1 CIRCUIT BOARD
C3	* 87-015-380	CAP,ELECT BP 4.7-25V
C7	* 87-018-121	CAP,CERA-SOL SS 150P
C9	* 87-018-124	CAP,CERA-SOL SS 270P
C13	* 87-018-117	CAP,CERA-SOL SS 68P
C17	* 87-018-104	CAP,CERA-SOL SS 10P
C19	* 87-018-099	CAP,CERA-SOL 3.9P
C21	* 87-018-097	CAP,CERA-SOL SS 2.2P
C25	* 87-018-129	CAP,CERA-SOL 680P
C35	* 87-015-691	CAP,ELECT 0.1-50
C53	* 87-018-106	CAP,CERA-SOL SS 15P
C59	* 87-018-123	CAP,CERA-SOL SS 220P
D1	87-027-469	DIODE,ZENER HZ16-2
D3	87-020-110	DIODE,1SS177
D5	87-027-469	DIODE,ZENER HZ16-2
D7	87-020-110	DIODE,1SS177
D15	87-027-625	DIODE,ZENER 05Z-6.8U
D17	87-027-625	DIODE,ZENER 05Z-6.8U
⚠R43	* 87-029-112	RES,FUSIBLE 1/4W-330
SFR1	* 87-021-856	SFR 100
=== DRIVER-2 CIRCUIT BOARD SECTION ===		
PCB-D	*	DRIVER-2 CIRCUIT BAORD
C4	* 87-015-380	CAP,ELECT BP 4.7-25V
D2	87-027-469	DIODE,ZENER HZ16-2
D4	87-020-110	DIODE 1SS177
D6	87-027-469	DIODE,ZENER HZ16-2
D8	87-020-110	DIODE,1SS177
C8	*.87-018-121	CAP,CERA-SOL SS 150P
C10	* 87-018-124	CAP,CERA-SOL SS 270P
C14	* 87-018-117	CAP,CERA-SOL SS 68P
C18	* 87-018-104	CAP,CERA-SOL SS 10P
C20	* 87-018-099	CAP,CERA-SOL 3.9P
C22	* 87-018-097	CAP,CERA-SOL SS 2.2P
C26	* 87-018-129	CAP,CERA-SOL 680P
C36	* 87-015-691	CAP,ELECT 0.1-50
C54	* 87-018-106	CAP,CERA-SOL SS 15P
C60	* 87-018-123	CAP,CERA-SOL SS 220P
D16	87-027-625	DIODE,ZENER,05Z-6.8U
D18	87-027-625	DIODE,ZENER 05Z-6.8U
⚠R44	* 87-029-112	RES,FUSIBLE 1/4W-330
SFR2	* 87-021-856	SFR 100
=== FUSE CIRCUIT BOARD SECTION ===		
PCB-E	*	FUSE CIRCUIT BOARD (EXCEPT H)
	82-304-743	1P TERMINAL (EXCEPT H)
⚠	87-033-147	FUSE CLAMP (EXCEPT H)
⚠F1	87-035-313	FUSE,5A (U ONLY)
⚠F1	87-035-190	FUSE,T2A (E,K,Z ONLY)
=== FUSE SUB CIRCUIT BOARD SECTION ===		
PCB-F	*	FUSE SUB CIRCUIT BOARD (EXCEPT H)
D65	87-027-185	DIODE,30D2FA (EXCEPT H)
D66	87-027-185	DIODE,30D2FA (EXCEPT H)
D67	87-027-185	DIODE,30D2FA (EXCEPT H)
D68	87-027-185	DIODE,30D2FA (EXCEPT H)
⚠F3	87-035-303	FUSE,4A (U ONLY)
⚠F3	87-035-191	FUSE,T3.15A (E,K,Z ONLY)
⚠F4	87-035-303	FUSE,4A (U ONLY)

Ref. No.	Part No.	Description
⚠F4	87-035-191	FUSE,T3.15A (E,K,Z ONLY)
=== VOLTAGE SELECTOR CIRCUIT BOARD SECTION (H ONLY) ===		
PCB-G	*	VOLTAGE SELECTOR CIRCUIT BOARD
	82-304-743	1P TERMINAL
⚠	87-033-147	FUSE CLAMP
⚠F1	87-035-312	FUSE, 7A
⚠F2	87-035-256	FUSE,3.15A
⚠S12	87-031-685	ROTARY SWITCH (VOLTAGE SELECTOR)
=== MISCELLANEOUS ===		
⚠	* 87-034-578	AC CORD,U (U ONLY)
⚠	* 82-788-674	AC CORD,E50 (E,Z ONLY)
⚠	* 87-034-708	AC CORD,K50B (K ONLY)
⚠	* 87-085-184	AC CORD BUSHING,D (H,U ONLY)
⚠	* 87-085-185	AC CORD BUSHING (E,K,Z ONLY)
⚠T1	* 81-738-606	TRANSFORMER PT,H (H ONLY)
⚠T1	* 81-738-607	TRANSFORMER PT,U (U ONLY)
⚠T1	* 81-738-608	TRANSFORMER PT,E (E,Z ONLY)
⚠T1	* 81-738-609	TRANSFORMER PT,K (K ONLY)

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary,please order the entire circuit board.

[GX-120]

Combination circuit board 81-729-610
PCB-A 81-739-611
PCB-B 81-739-612

[BX-120]

Combination circuit board 81-738-610
PCB-A 81-738-611
PCB-B 81-738-612
PCB-C 81-738-613
PCB-D 81-738-614
PCB-E 81-738-616 (EXCEPT H)
PCB-F 81-738-617 (EXCEPT H)
PCB-G 81-738-618 (H ONLY)

C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260℃) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (⏚).

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

Description	Ref. No.	Part No.	Description
(SPEAKERS A(R))	⚠S11	87-031-897	PUSH SW,SEA (POWER STANDBY/ON)
L (SPEAKERS B)			
			=== DRIVER-1 CIRCUIT BOARD SECTION ===
	PCB-C	*	DRIVER-1 CIRCUIT BOARD
	C3	* 87-015-380	CAP,ELECT BP 4.7-25V
	C7	* 87-018-121	CAP,CERA-SOL SS 150P
70	C9	* 87-018-124	CAP,CERA-SOL SS 270P
70	C13	* 87-018-117	CAP,CERA-SOL SS 68P
2W	C17	* 87-018-104	CAP,CERA-SOL SS 10P
2W	C19	* 87-018-099	CAP,CERA-SOL 3.9P
3.3	C21	* 87-018-097	CAP,CERA-SOL SS 2.2P
3.3	C25	* 87-018-129	CAP,CERA-SOL 680P
	C35	* 87-015-691	CAP,ELECT 0.1-50
	C53	* 87-018-106	CAP,CERA-SOL SS 15P
EAKER A))	C59	* 87-018-123	CAP,CERA-SOL SS 220P
S A)	D1	87-027-469	DIODE,ZENER HZ16-2
S B)	D3	87-020-110	DIODE,1SS177
	D5	87-027-469	DIODE,ZENER HZ16-2
	D7	87-020-110	DIODE,1SS177
	D15	87-027-625	DIODE,ZENER 05Z-6.8U
OARD	D17	87-027-625	DIODE,ZENER 05Z-6.8U
50	⚠R43	* 87-029-112	RES,FUSIBLE 1/4W-330
50	SFR1	* 87-021-856	SFR 100
0			
50V			=== DRIVER-2 CIRCUIT BOARD SECTION ===
0			
50V	PCB-D	*	DRIVER-2 CIRCUIT BAORD
0	C4	* 87-015-380	CAP,ELECT BP 4.7-25V
	D2	87-027-469	DIODE,ZENER HZ16-2
50V	D4	87-020-110	DIODE 1SS177
	D6	87-027-469	DIODE,ZENER HZ16-2
0	D8	87-020-110	DIODE,1SS177
50V	C8	* 87-018-121	CAP,CERA-SOL SS 150P
0P	C10	* 87-018-124	CAP,CERA-SOL SS 270P
0P			
0	C14	* 87-018-117	CAP,CERA-SOL SS 68P
	C18	* 87-018-104	CAP,CERA-SOL SS 10P
50V	C20	* 87-018-099	CAP,CERA-SOL 3.9P
270P	C22	* 87-018-097	CAP,CERA-SOL SS 2.2P
270P	C26	* 87-018-129	CAP,CERA-SOL 680P
0	C36	* 87-015-691	CAP,ELECT 0.1-50
	C54	* 87-018-106	CAP,CERA-SOL SS 15P
50V	C60	* 87-018-123	CAP,CERA-SOL SS 220P
0			
0	D16	87-027-625	DIODE,ZENER,05Z-6.8U
50V	D18	87-027-625	DIODE,ZENER 05Z-6.8U
	⚠R44	* 87-029-112	RES,FUSIBLE 1/4W-330
	SFR2	* 87-021-856	SFR 100
470P			
0P			=== FUSE CIRCUIT BOARD SECTION ===
0			
	PCB-E	*	FUSE CIRCUIT BOARD (EXCEPT H)
		82-304-743	1P TERMINAL (EXCEPT H)
	⚠	87-033-147	FUSE CLAMP (EXCEPT H)
	⚠F1	87-035-313	FUSE,5A (U ONLY)
	⚠F1	87-035-190	FUSE,T2A (E,K,Z ONLY)
			=== FUSE SUB CIRCUIT BOARD SECTION ===
	PCB-F	*	FUSE SUB CIRCUIT BOARD (EXCEPT H)
AFBS(SPEAKER A))	D65	87-027-185	DIODE,30D2FA (EXCEPT H)
A1	D66	87-027-185	DIODE,30D2FA (EXCEPT H)
	D67	87-027-185	DIODE,30D2FA (EXCEPT H)
	D68	87-027-185	DIODE,30D2FA (EXCEPT H)
	⚠F3	87-035-303	FUSE,4A (U ONLY)
1/4W	⚠F3	87-035-191	FUSE,T3.15A (E,K,Z ONLY)
	⚠F4	87-035-303	FUSE,4A (U ONLY)

Ref. No.	Part No.	Description
⚠F4	87-035-191	FUSE,T3.15A (E,K,Z ONLY)
		=== VOLTAGE SELECTOR CIRCUIT BOARD SECTION (H ONLY) ===
PCB-G	*	VOLTAGE SELECTOR CIRCUIT BOARD
	82-304-743	1P TERMINAL
⚠	87-033-147	FUSE CLAMP
⚠F1	87-035-312	FUSE, 7A
⚠F2	87-035-256	FUSE,3.15A
⚠S12	87-031-685	ROTARY SWITCH (VOLTAGE SELECTOR)
		=== MISCELLANEOUS ===
⚠	* 87-034-578	AC CORD,U (U ONLY)
⚠	* 82-788-674	AC CORD,E50 (E,Z ONLY)
⚠	* 87-034-708	AC CORD,K50B (K ONLY)
⚠	* 87-085-184	AC CORD BUSHING,D (H,U ONLY)
⚠	* 87-085-185	AC CORD BUSHING (E,K,Z ONLY)
⚠T1	* 81-738-606	TRANSFORMER PT,H (H ONLY)
⚠T1	* 81-738-607	TRANSFORMER PT,U (U ONLY)
⚠T1	* 81-738-608	TRANSFORMER PT,E (E,Z ONLY)
⚠T1	* 81-738-609	TRANSFORMER PT,K (K ONLY)

Note; Combination Circuit Board

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[GX-120]

Combination circuit board 81-729-610
PCB-A 81-739-611
PCB-B 81-739-612

[BX-120]

Combination circuit board 81-738-610
PCB-A 81-738-611
PCB-B 81-738-612
PCB-C 81-738-613
PCB-D 81-738-614
PCB-E 81-738-616 (EXCEPT H)
PCB-F 81-738-617 (EXCEPT H)
PCB-G 81-738-618 (H ONLY)

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3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
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⚠ Safety component symbol

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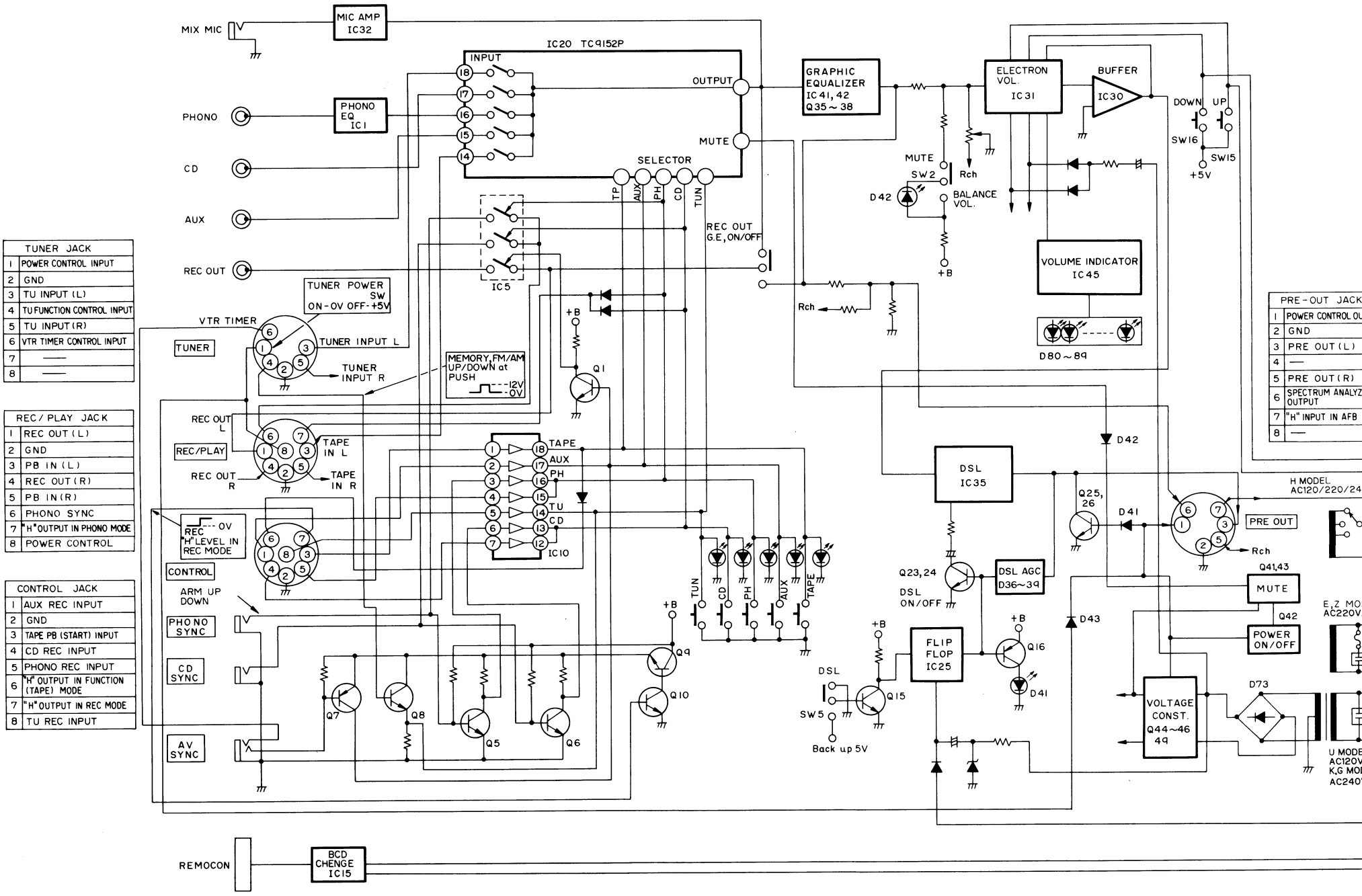
BLOCK DIAGRAM (GX-120)



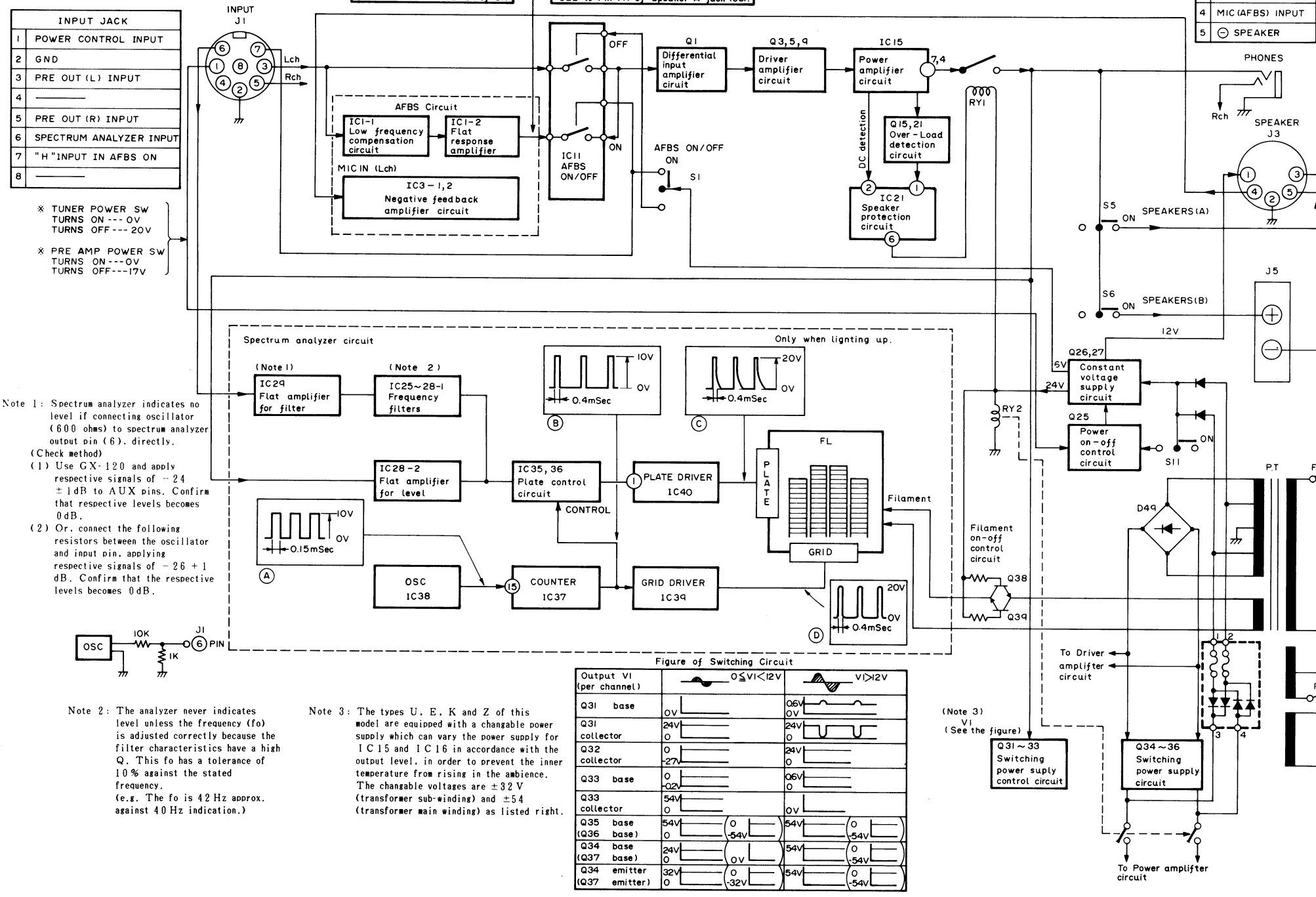
TUNER JACK	
1	POWER CONTROL INPUT
2	GND
3	TU INPUT (L)
4	TU FUNCTION CONTROL INPUT
5	TU INPUT (R)
6	VTR TIMER CONTROL INPUT
7	——
8	——

REC / PLAY JACK	
1	REC OUT (L)
2	GND
3	PB IN (L)
4	REC OUT (R)
5	PB IN (R)
6	PHONO SYNC
7	"H" OUTPUT IN PHONO MODE
8	POWER CONTROL

CONTROL JACK	
1	AUX REC INPUT
2	GND
3	TAPE PB (START) INPUT
4	CD REC INPUT
5	PHONO REC INPUT
6	"H" OUTPUT IN FUNCTION (TAPE) MODE
7	"H" OUTPUT IN REC MODE
8	TU REC INPUT

PRE-OUT JACK	
1	POWER CONTROL OU
2	GND
3	PRE OUT (L)
4	——
5	PRE OUT (R)
6	SPECTRUM ANALYZ OUTPUT
7	"H" INPUT IN AFB
8	——

BLOCK DIAGRAM (BX-120)



INPUT JACK	
1	POWER CONTROL INPUT
2	GND
3	PRE OUT (L) INPUT
4	——
5	PRE OUT (R) INPUT
6	SPECTRUM ANALYZER INPUT
7	"H" INPUT IN AFBS ON
8	——

SPEAKER JACK	
1	POWER OUTPUT
2	GND
3	⊕ SPEAKER
4	MIC (AFBS) INPUT
5	⊖ SPEAKER

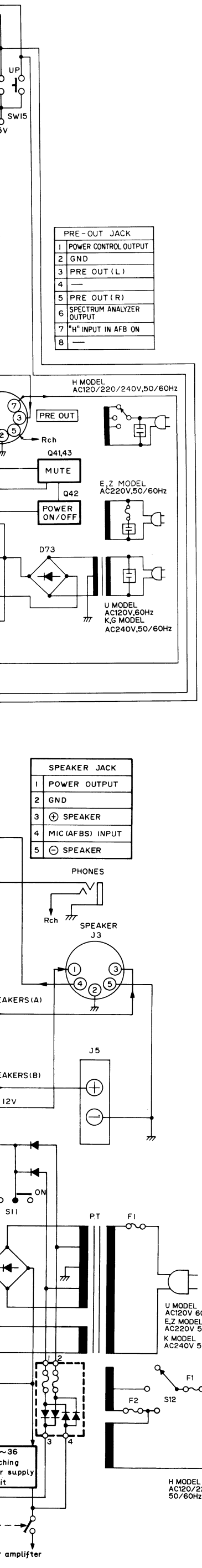
Note 1: Spectrum analyzer indicates no level if connecting oscillator (600 ohms) to spectrum analyzer output pin (6), directly.
(Check method)
(1) Use GX-120 and apply respective signals of −24 ±1dB to AUX pins. Confirm that respective levels becomes 0dB.
(2) Or, connect the following resistors between the oscillator and input pin, applying respective signals of −26 +1 dB. Confirm that the respective levels becomes 0dB.

Note 2: The analyzer never indicates level unless the frequency (fo) is adjusted correctly because the filter characteristics have a high Q. This fo has a tolerance of 10% against the stated frequency.
(e.g. The fo is 42 Hz approx. against 40 Hz indication.)

Note 3: The types U, E, K and Z of this model are equipped with a changable power supply which can vary the power supply for IC15 and IC16 in accordance with the output level, in order to prevent the inner temperature from rising in the ambience. The changable voltages are ±32V (transformer sub-winding) and ±54 (transformer main winding) as listed right.

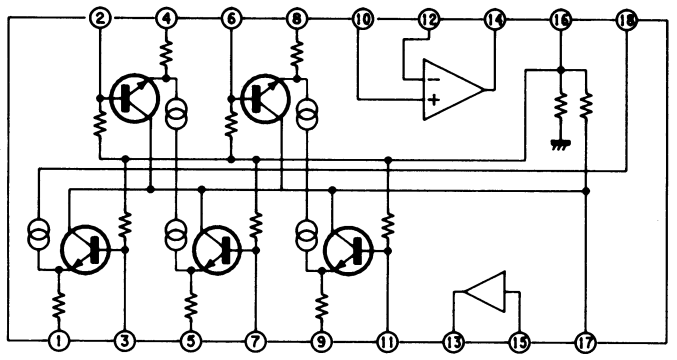
Figure of Switching Circuit

Output VI (per channel)	0≦VI<12V	VI>12V
Q31 base	0V	0.6V 0V
Q31 collector	24V 0	24V 0
Q32 collector	0 -27V	24V 0
Q33 base	0 -0.2V	0.6V 0
Q33 collector	54V 0	0V
Q35 base (Q36 base)	54V 0 -54V	54V 0 -54V
Q34 base (Q37 base)	24V 0 0V	54V 0 -54V
Q34 emitter (Q37 emitter)	32V 0 -32V	54V 0 -54V

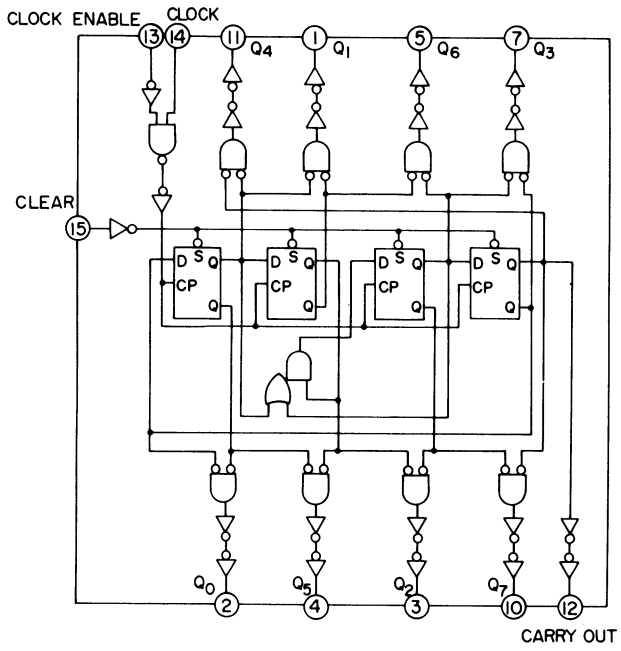


IC BLOCK DIAGRAM

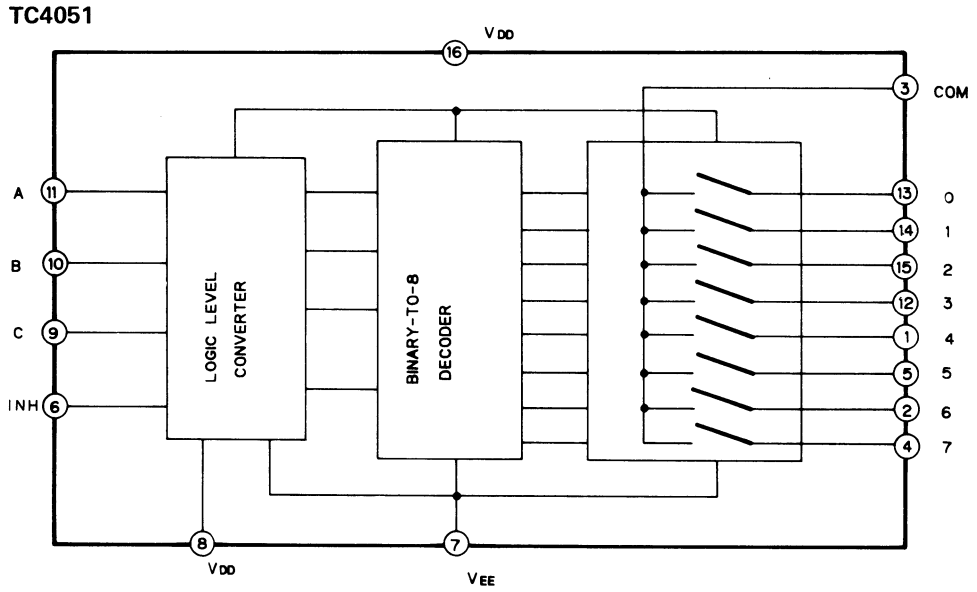
BA3812L



TC4022BP



TC4051



TRUTH TABLE

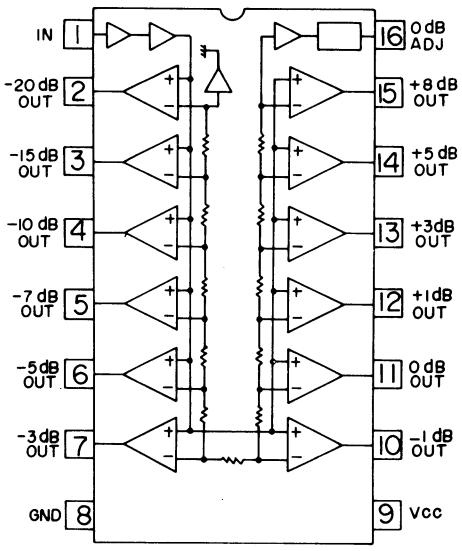
CONTROL INPUTS				"ON" CHANNEL
INHIBIT	C	B	A	
L	L	L	L	0
L	L	L	H	1
L	L	H	L	2
L	L	H	H	3
L	H	L	L	4
L	H	L	H	5
L	H	H	L	6
L	H	H	H	7
H	※	※	※	NOTE

※ Don't Care

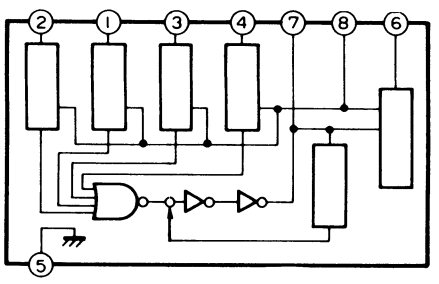
NOTES:

1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
2) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%.
3) Capacitors with no designation have a dielectric strength of less than 50WV.
4) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
5) Ceramic capacitor symbols:
   - —||(Y— High dielectric constant system (YY)
   - —|| — High dielectric constant system (YW, YP, YZ)
   - —•|| — Semiconductor ceramic
6) Explanation of symbols
   - (M) Mylar capacitor
   - (A) Aluminum solid capacitor
   - (PP) Polypropylene film capacitor
   - (BP) Bi-polarized capacitor
   - (LL) Low-leakage capacitor
   - (T) Tantalum capacitor
   - (S) Styrol capacitor

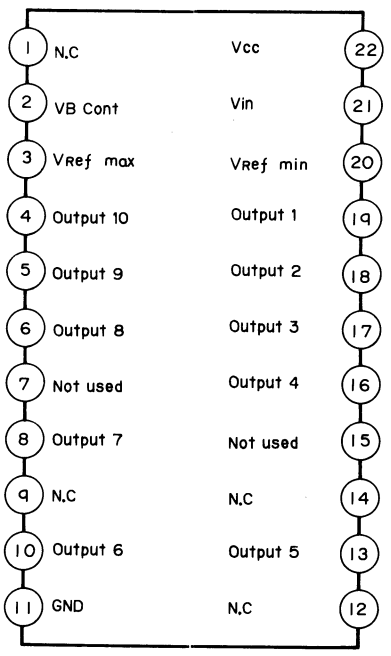
BA658

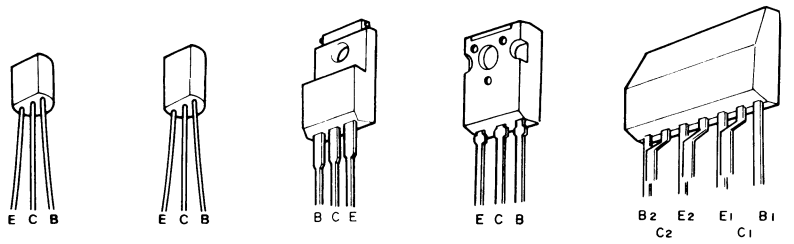


μPC 1237H

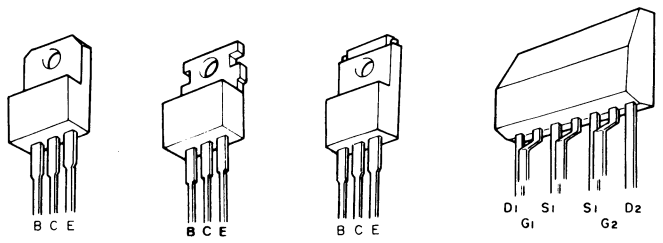


IR2406G





2SA1015 2SA1124 2SC945 2SC1815 2SC2001 2SC2632 2SD1302 | **2SA1020 2SC2655** | **2SB1015 2SD1406** | **2SB1067** | **2SC3381**



2SD688 2SD718 | **2SD880** | **2SD1275** | **2SK389**

⚠ Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.

SCHEMATIC DIAGRAM (GX-120)

A MAIN C.B

PHONO AMP.

DSL

J1 PHONO L

J1 PHONO R

J2 CD L R

J3 AUX L R

L REC OUT R

J4

J5 PLAYER SYNC

J9 CD SYNC

TUNER J8
1 POWER ON/OFF
2 GND
3 L CH
4 TUNER
5 R CH
6 AVTIMER

J6 REC/PLAY
1 REC OUT L
2 GND
3 L CH
4 REC OUT R
5 R CH
6 SYNC
7 PHONO/CD
8 POWER ON/OFF

J7 CONT.
1 AUX REC
2 GND
3 PB
4 CD REC
5 PHONO REC
6 TAPE
7 REC
8 TUNER REC

J10 VIDEO SYNC
1 GND
2 POWER ON
3 INT VD

J12 REMOCON
1 +12V
2 GND
3 A
4 B
5 C

J13 MIX MIC

※ : Z ONLY

M5220

IC5 M4066BR

IC10 M54563 BUFFER

IC15 TC 4051BP

IC20 TC9152 SELECTOR

IC25 TC4027BP

IC30-1 IC30-2 NJM4560 BUFFER

IC31 MN6632

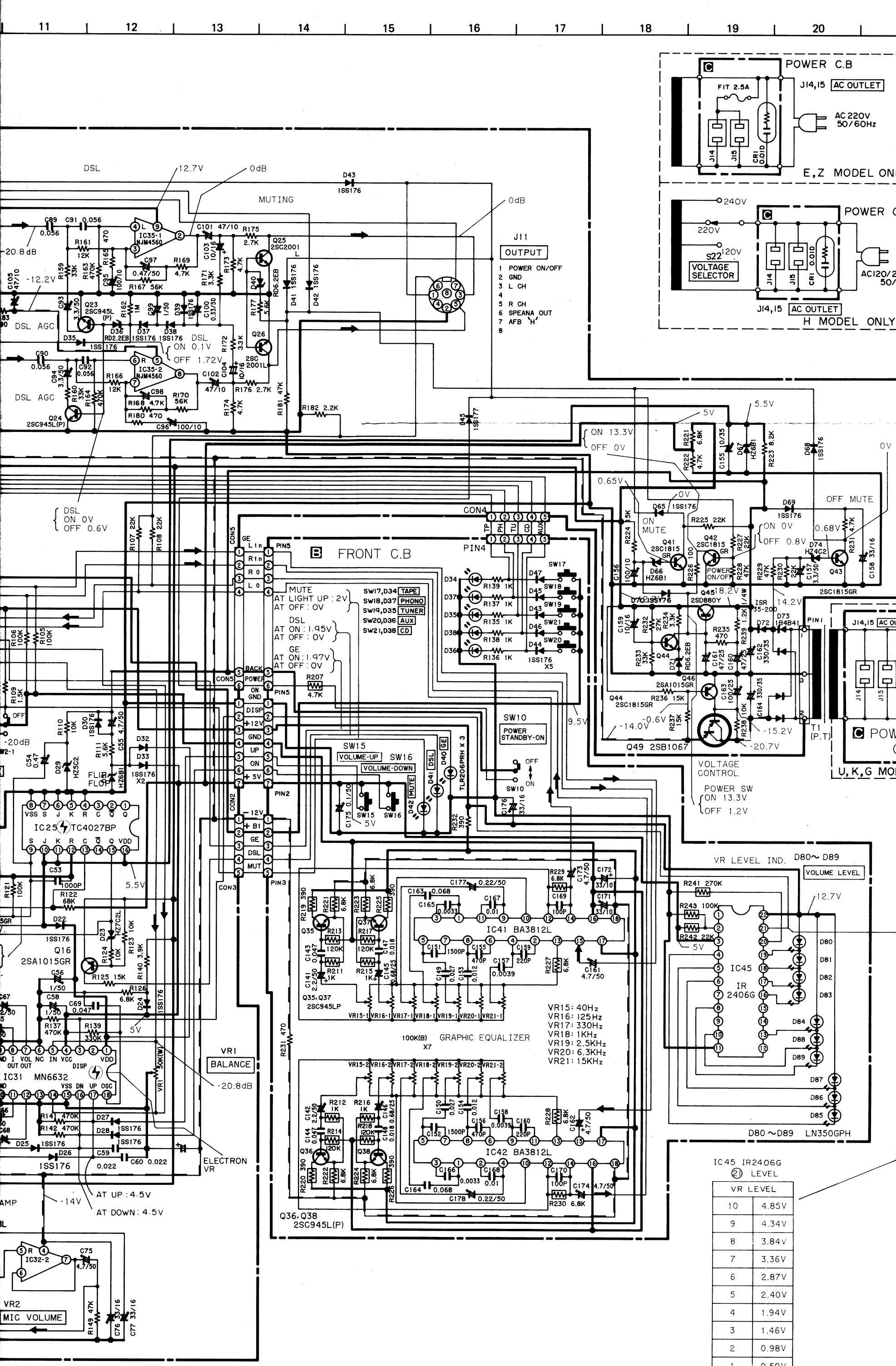
IC32 M5218L MIC AMP

SW1 REC OUT

SW2 MUTE

SW3 DSL

VR2 MIC VOLUME



IC45 IR2406G
(21) LEVEL

VR LEVEL	
10	4.85V
9	4.34V
8	3.84V
7	3.36V
6	2.87V
5	2.40V
4	1.94V
3	1.46V
2	0.98V
1	0.50V
0	0V

B FRONT C.B

D80 ~ D89
VOLUME LEVEL

SW17, D34
TAPE

SW19, D35
TUNER

VR2
15KH

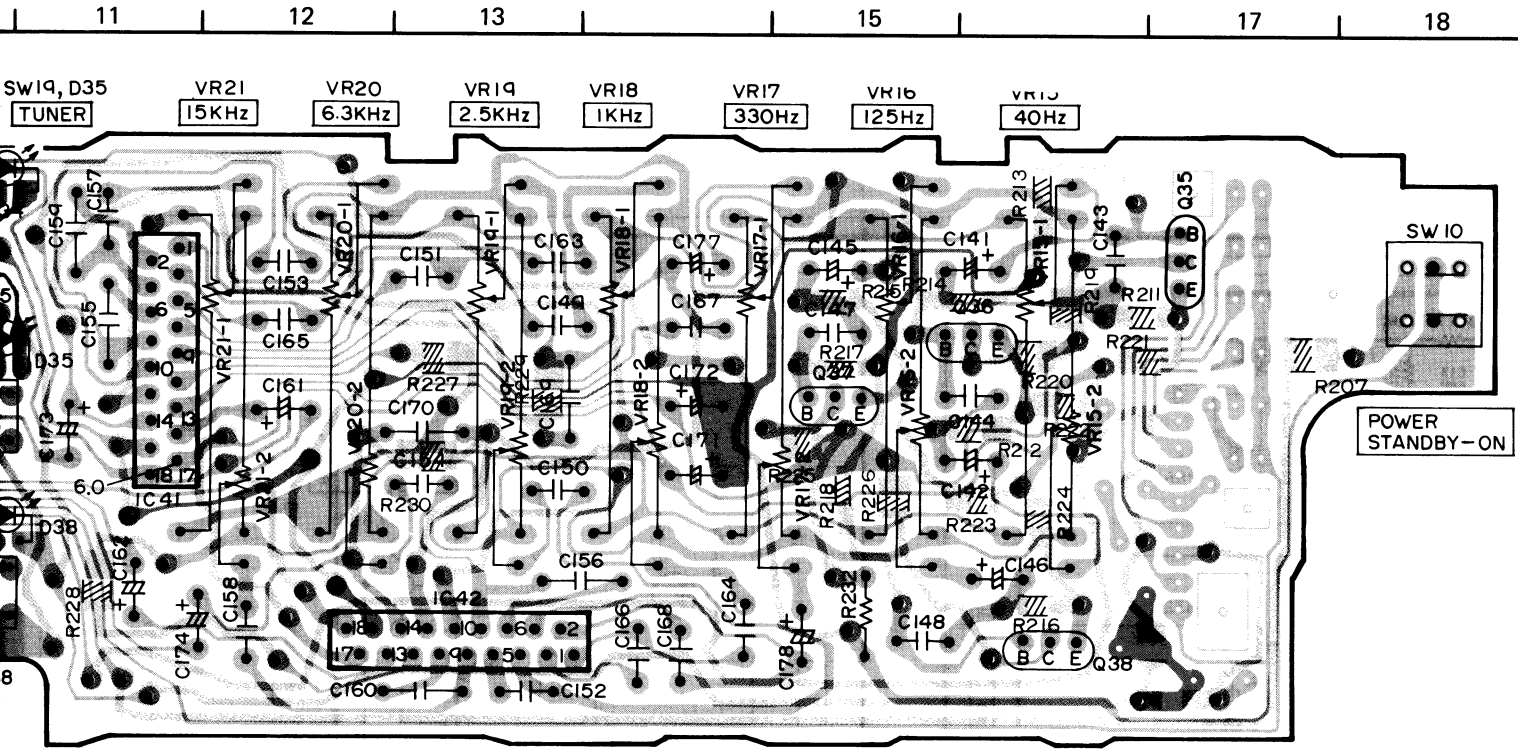
VOLUME-UP
SW15
SW16
VOLUME-DOWN
C175
R243
R242
R241
IC45
D85 D86 D87 D84 D88 D84 D83 D82 D81 D80
R231
D42
D41
D40
GL
DSL
MUT
PIN 2
PIN 3
PIN 4
PIN 5
R136
D37
SW18
D45
R37
SW17
D47
R139
D34
C154
C157
R135
D43
SW19
D35
C155
C173
R138
D46
D44
D36
SW20
SW21
D38
C164
R228
C174
C158
IC41
6.0
SW18, D37
PHONO
SW20, D36
AUX
SW21, D38
CD

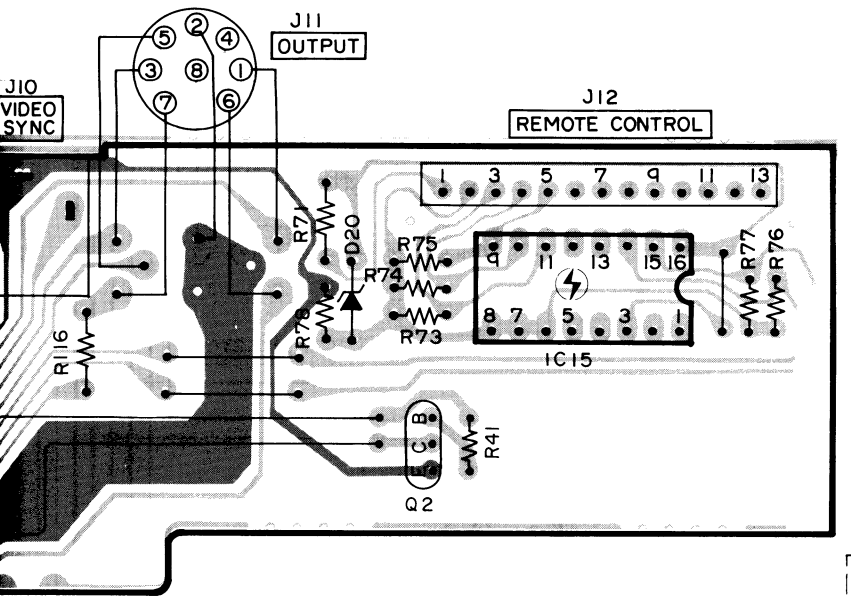
※ : Z ONLY

J1 PHONO
J2 CD
J3 AUX
J4 REC OUT
SIGNAL EARTH
J5 PLAYER SYNC
J6 REC/PLAY
J7 CONT
J8 TUNER
J9 CD SYNC
J10 VIDEO SYNC
Lch Rch

NO CONNECT
※C201
※C205
※C206
※C207
※C208
※C209
※C210
※C211
※C212
R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28 R29 R30 R31 R32 R35 R36 R37 R38 R39 R40 R41 R42 R43 R44 R45 R46 R47 R48 R49 R50 R51 R52 R53 R56 R57 R58 R59 R60 R61 R62 R63 R116
C1 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38 C39 C40 C41 C42 C43 C46
D1 D2 D3 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D22 D24 D25 D27 D28 D32 D51
IC1 IC5 IC10 IC20 IC30 IC31 IC32 IC35
Q1 Q3 Q5 Q6 Q7 Q8 Q9 Q10 Q24 Q26
R161 R163 R164 R166 R167 R168 R169 R170 R171 R172 R173 R174 R175 R177 R180 R183
C92 C93 C94 C96 C97 C98 C99 C101 C102 C104 C105 C106
D39 D40
R232 R233 R234 R235 R237 R239 R223
C159 C160 C161 C163
D71
Q44 Q45
R224 R225 R110
D65 D66 D70
Q41
C156
R229 R227 R228
D41 D68
R231 R222 R221
C52 C53 C57
Q15
D74 D23
R230 R122 R124
Q16
C55 D30
R123
IC25
R118 R119 R120
R121
SW1 REC OUT
SW2 TUNING
SW3 DSL
VR1 BALANCE
VR2 MIX MIC
J13 MIX MIC
CON2 CON3 CON4 CON5
R101 R102 R103 R104 R105 R106 R107 R108 R150
R137 R139 R149
C56 C58 C59 C60 C61 C62 C63 C64 C65 C66 C68 C69 C71 C72 C73 C74 C75 C77
D24 D25 D27 D28 D36 D38
R126 R135 R136 R143 R144 R145 R146 R147 R148
IC31 IC32
(BLK)
5.0 4.6 31.8 -15.2 -20.2 9.3 2.5 9.9

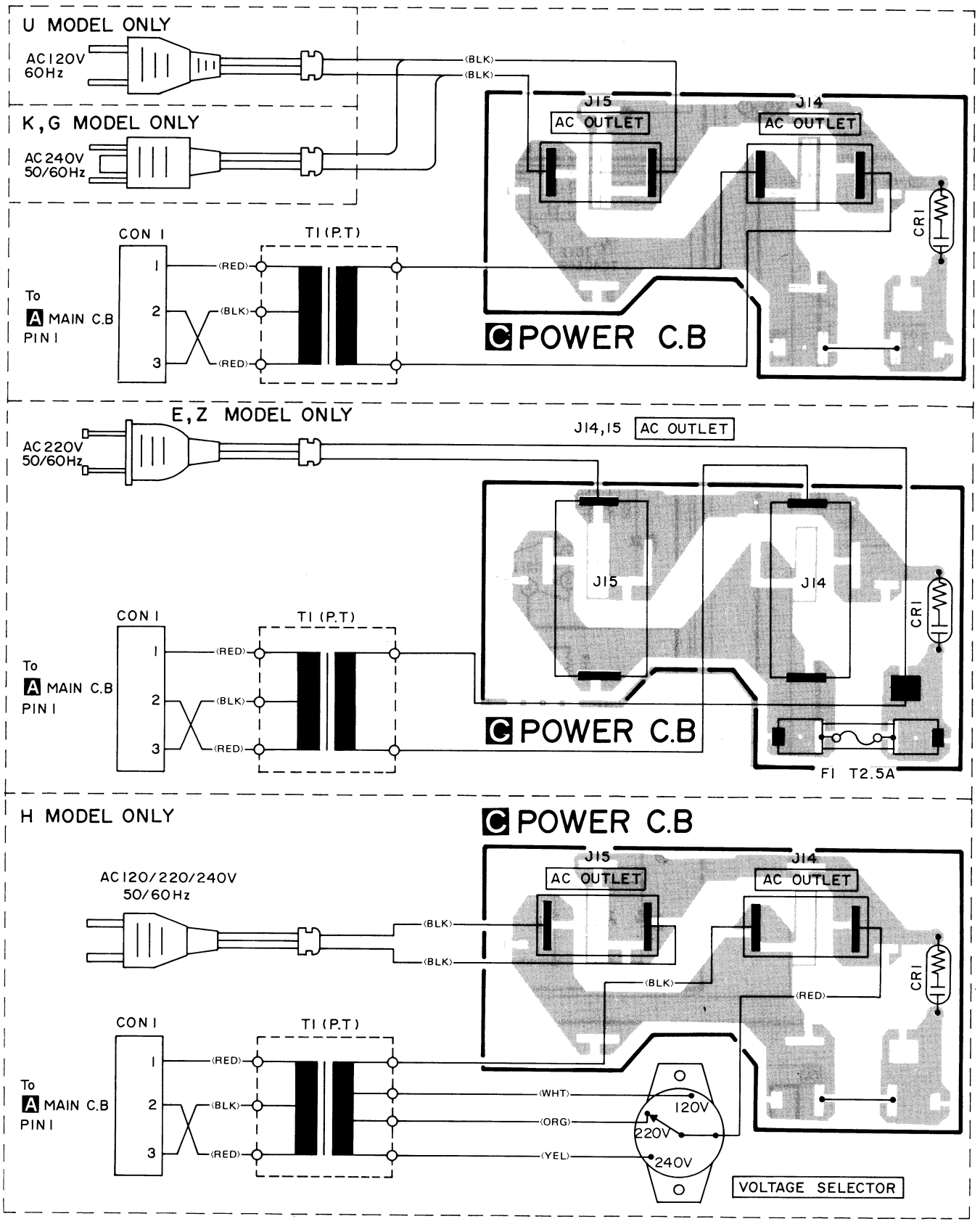
A MAIN C.B





AIN C.B

NOTES (1) Earth pattern Component side pattern Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.



SCHEMATIC DIAGRAM (BX-120)

A MAIN C.B

C DRIVER-1 C.B

D DRIVER-2 C.B

Q15,16 DETECTION

Q21,IC21 PROTECTION CIRCUIT

IC1,3 M5218L
IC1,2 AFBS FILTER
(PRE-OUT SIGNAL)

IC3,4
AFBS FILTER
(MIC SIGNAL)

AFBS ON/OFF SELECTOR

SFR 1
DC OV ADJ.

SFR 2
DC OV ADJ.

INPUT
J1
① POWER ON/OFF
② GND
③ PRE OUT (L)
④ NC
⑤ PRE OUT (R)
⑥ SIGNAL INPUT
⑦ AFB 'H'
⑧ NC

0V/TUNER POWER SW ON
20V/TUNER POWER SW OFF

0V/PRE AMP POWER SW ON
17V/PRE/AMP. POWER SW OFF

SWITCHING LEVEL DETECTION
(U,E,K,Z MODEL ONLY)

※ H MODEL ONLY
① - ② SHORT
⑥ - ⑦ SHORT

RELAY
(POWER SUPPLY)

U,E,K,Z MODEL ONLY

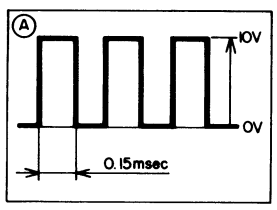
Q31 ~ Q37
SWITCHING

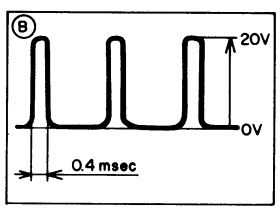
D60 ~ D63
1SS177

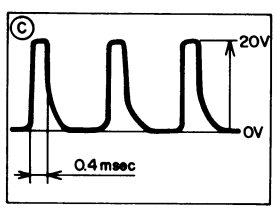
1.0V/POWER OFF
0V/POWER ON

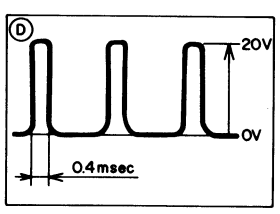
IC21 μPC1237H

B (+) power supply
B (−) power supply
Signal path
Rec path









IC25~28(SPECTRUM ANALYZE FREQ & LEVEL) AMP.
FILTER

DETECTION

PIN4 SPEANA IN

IC25~28 NJM4560

B FRONT C.B

TC4066BP PLATE DRIVER

IC35

IC35.36 ANALOG SW (DISPLAY FREQ SELECTOR)

TC4066BP

IC36

IC40 BA658

PLATE

FL

40 125 330 1K 2.5K 6.3K 15K POWER LEVEL

FILAMENT

GRID

GRID DRIVER

IC39 LB1290

COUNTER

IC37 TC4022BP

VDD CLOCK CLEAR CL(EN) 40 6.3K NC 2.5K LEVEL NC VSS IK 330 15K 125

CLOCK GENERATER

IC38 TC4001BP

D45 HZ12A1

D43 TLR206 AFBS LED

D35~42 1SS177

※R209

H ONLY	180
EXCEPT H	220

S11 POWER

PIN4 PIN6

+B 24V

※R231, 232

H ONLY	1K(2W)
EXCEPTH	1.5K(2W)

※F3,4

U	4A
E,K,Z	T3.15A

32.5V/POWER OFF
30.2V/POWER ON

25.1V/POWER ON

27.8V/POWER ON
1.4V/POWER OFF

D53.54,55 1SS177

D56 HZ5C2

Q25 2SD1302S

Q26 2SD 1275

Q27 2SC1815Y

D65~D68 30D2FA

F FUSE SUB C.B (U,E,K,Z MODEL ONLY)

D51.52 1SR35-200

T1 P.T. PIN5 PIN3

D49 D5FB20

T.F

E FUSE C.B

		FI	AC
U	MODEL	5A	120V 60Hz
E,Z	MODEL	2AT	220V 50/60Hz
K	MODEL	2AT	240V 50/60Hz

H MODEL ONLY

240V 220V 120V F1 7A F2 3.15A S12

G VOLTAGE SELECTOR C.B (H ONLY)

AC120/220/240V 50/60Hz

PHONES J2

To CHASSIS

S5-1 S5-2 OFF ON S5

SPEAKERS A

J3 SPEAKERS A (L)

J4 SPEAKERS A (R)

1. +12V 2. GND 3. +SP 4. MIC INPUT 5. -SP

S6 SPEAKERS B

S6-1 S6-2 OFF ON

J5 SPEAKERS B

Lch Rch

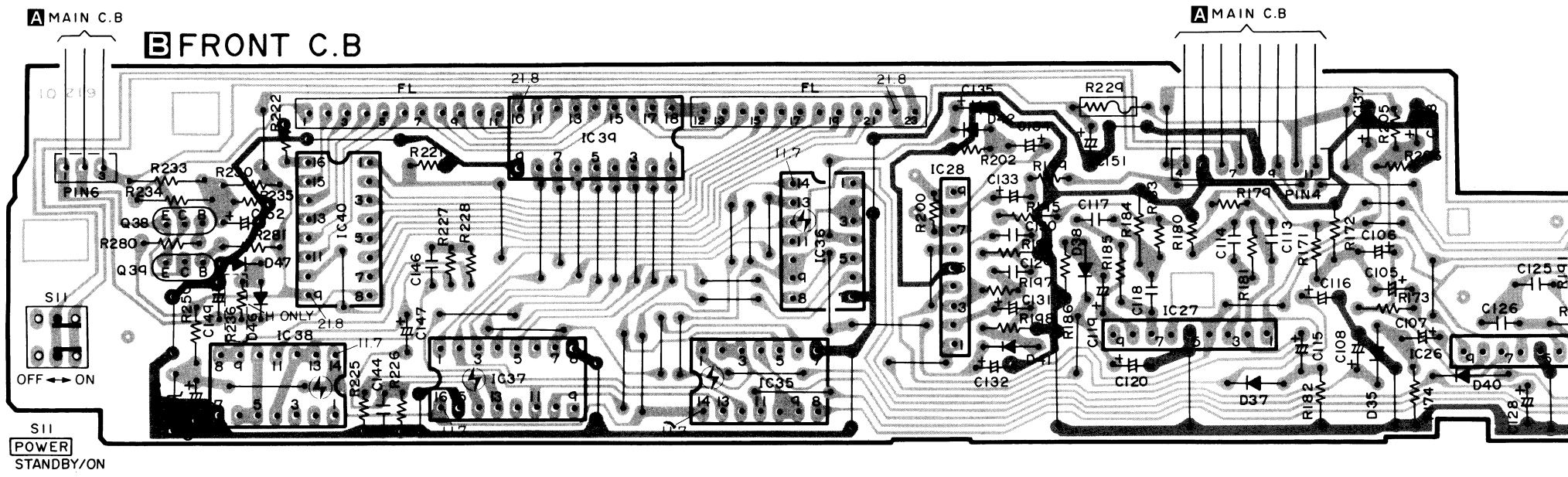
AC 1.2

FILAMENT 1.1

4.8

Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.



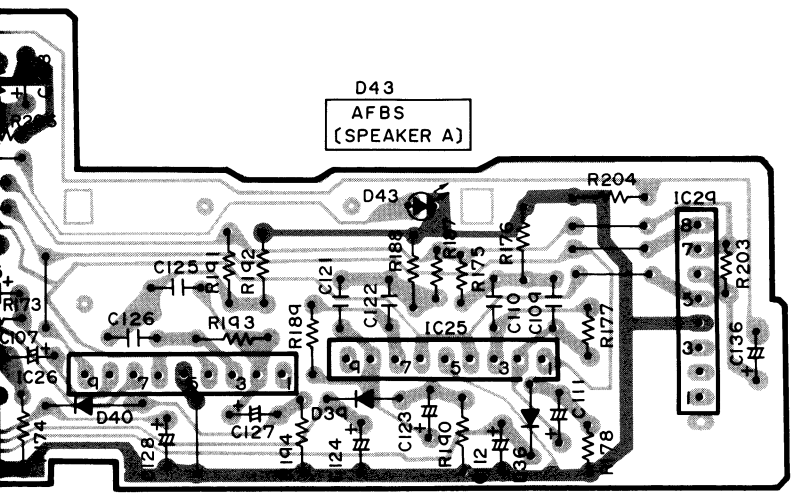
1. DC 0V ADJUSTMENT
Settings: • Input signal: No signal
• Test point: Speaker out B
• Adjustment locations:
SFR1 (Lch)
SFR2 (Rch)
Method: Adjust so that the voltage the test point is 0 ± 10mV.

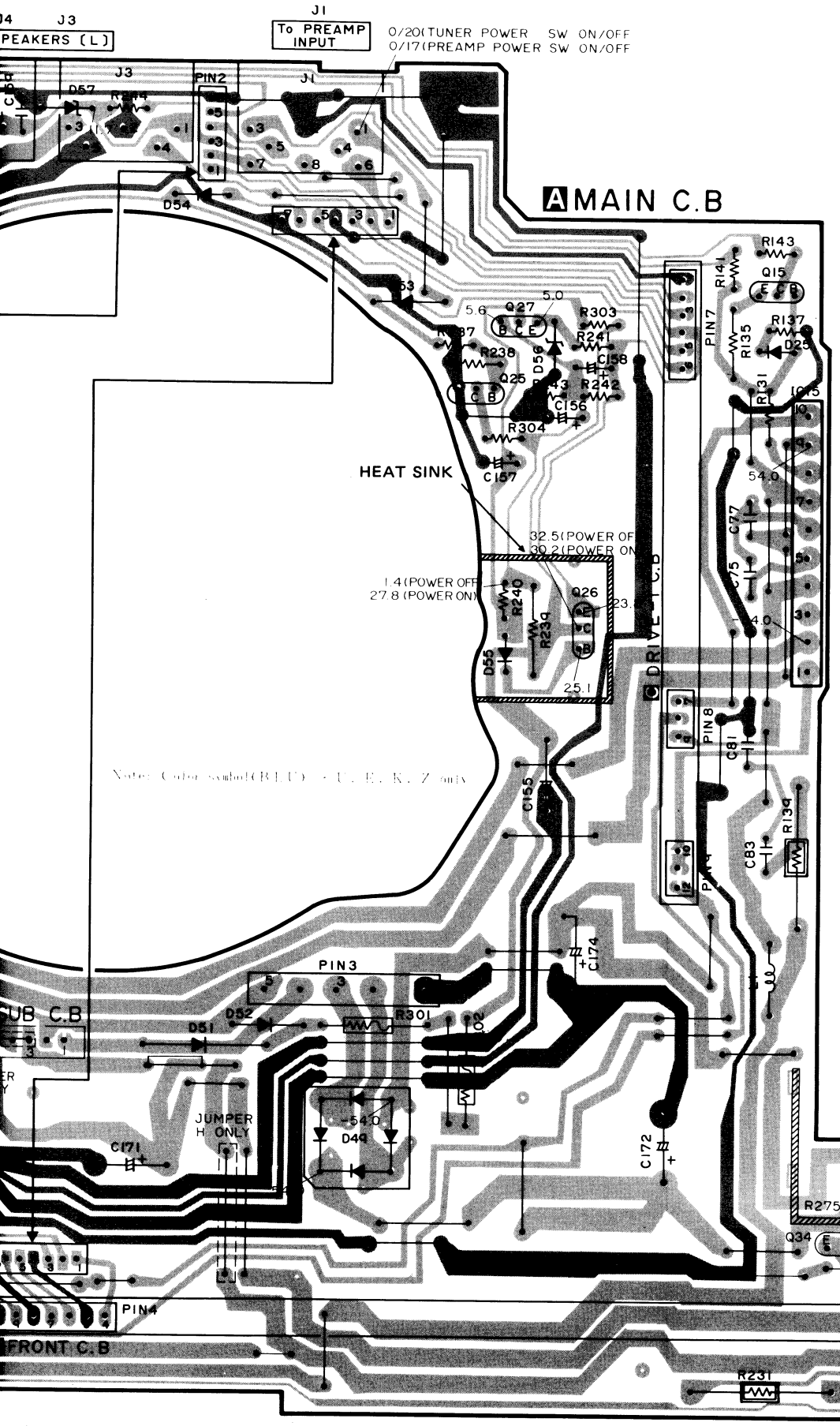
NOTES (1) ■ Earth pattern ▒ Others pattern

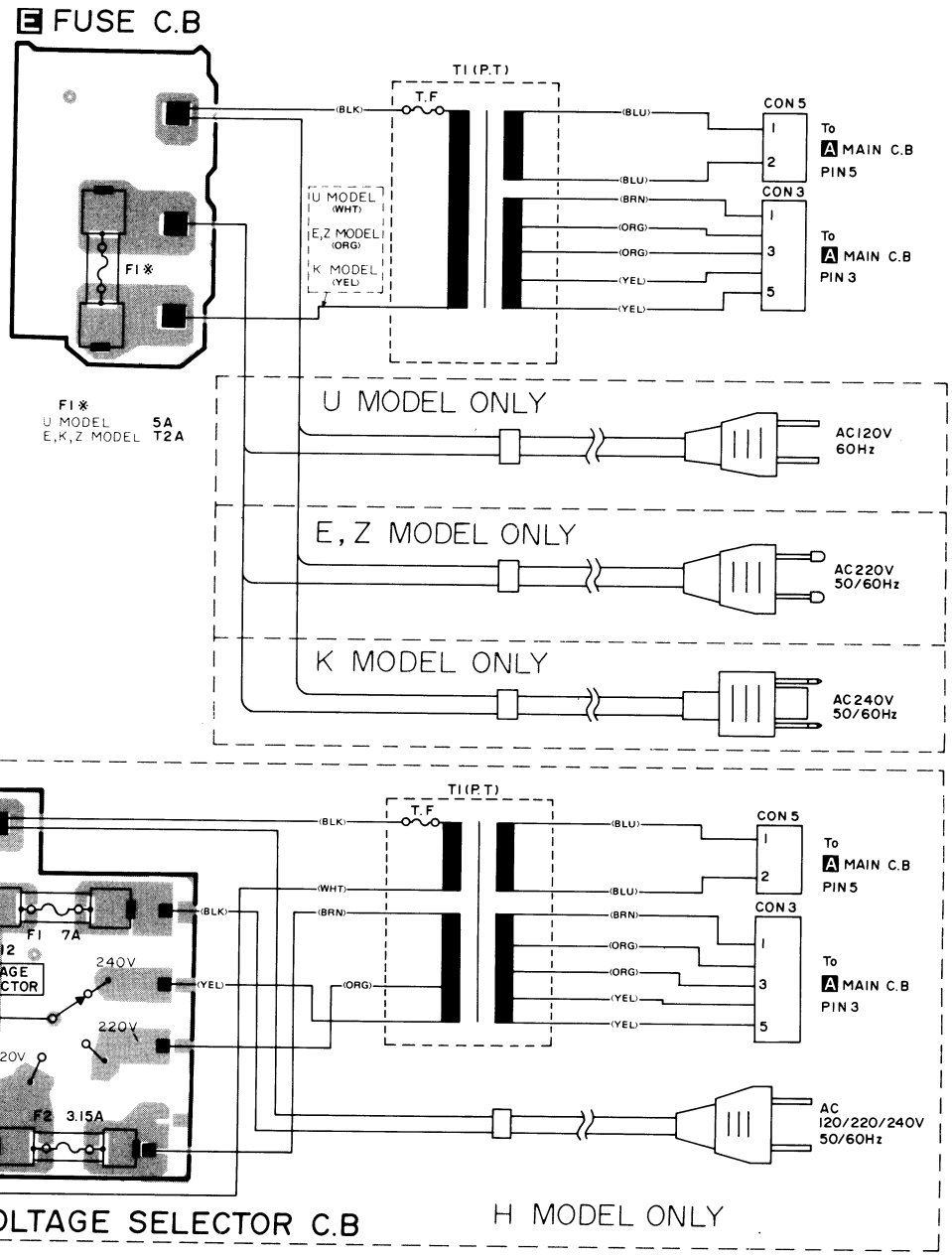
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

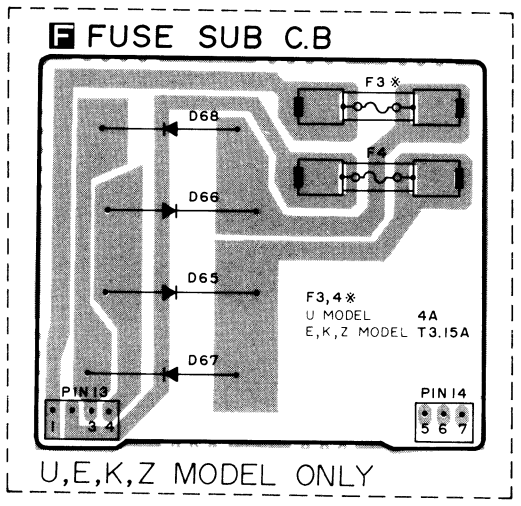
The ICs on the electrical parts which are indicated by

11 12 13 14 15 16 17 18 19 20 21







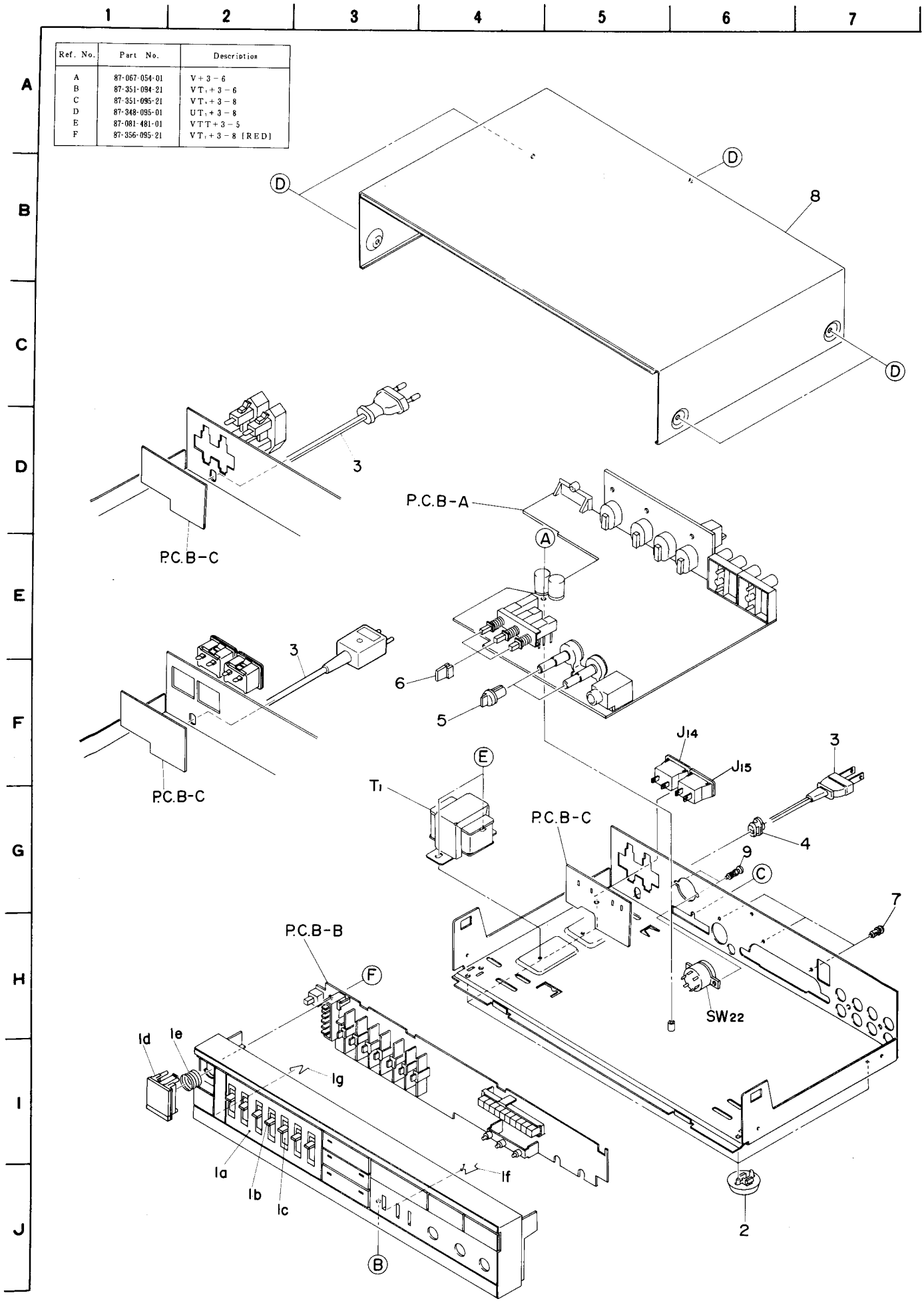


which are indicated by an C-MOS IC symbol mark (⚡).

☆ **MEMO** ☆

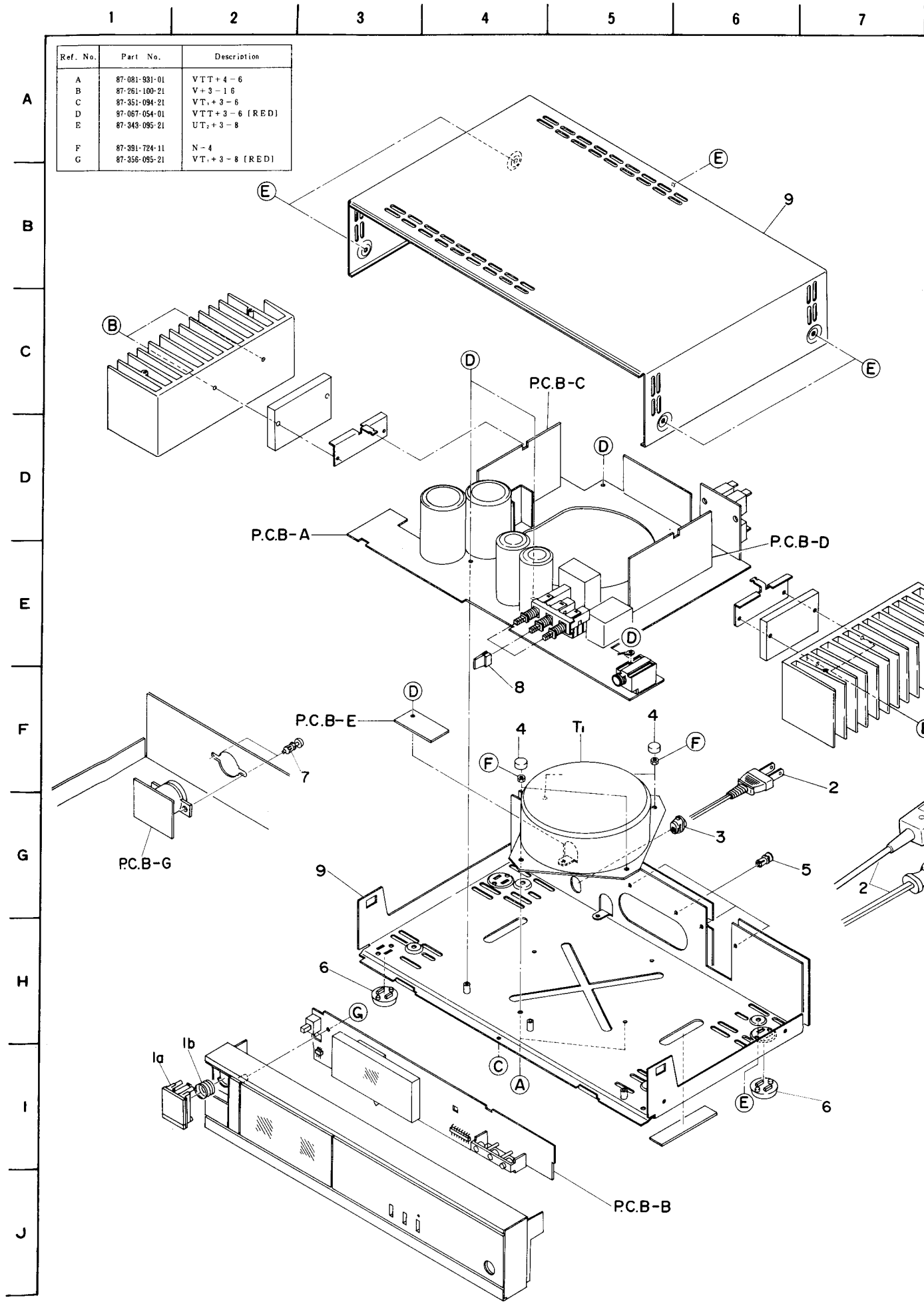
EXPLODED VIEW GX-120

Ref. No.	Part No.	Description
A	87-067-054-01	V + 3 − 6
B	87-351-094-21	VT₁ + 3 − 6
C	87-351-095-21	VT₁ + 3 − 8
D	87-348-095-01	UT₁ + 3 − 8
E	87-081-481-01	VTT + 3 − 5
F	87-356-095-21	VT₁ + 3 − 8 [RED]



EXPLODED VIEW BX-120

Ref. No.	Part No.	Description
A	87-081-931-01	VTT+4-6
B	87-261-100-21	V+3-16
C	87-351-094-21	VT1+3-6
D	87-067-054-01	VTT+3-6 [RED]
E	87-343-095-21	UT2+3-8
F	87-391-724-11	N-4
G	87-356-095-21	VT1+3-8 [RED]



MECHANICAL PARTS LIST

- ※mark in this part list shows exclusive part
- ★mark means less required items and availabilities may be limited.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1	★81-739-028	FRONT CABINET UB Ass'y	※	1
	1a	★81-740-007	PLATE G		1
	1b	★81-740-020	KNOB G		7
	1c	★81-740-021	SHEET G		7
	1d	★81-740-050	PUSH-KEY POWER B Ass'y		1
	1e	★81-740-208	C-SPRING, POWER		1
	1f	★81-740-211	T-SPRING, A		1
	1g	★81-740-212	T-SPRING, B		1
	2	★87-055-057	FOOT B		4
	3	★87-034-992	AC POWER CORD (H only)		1
		★87-034-578	AC POWER CORD (U only)		1
		★82-788-674	AC POWER CORD (E, Z only)		1
		★87-034-708	AC POWER CORD (K only)		1
	4	★87-085-184	CORD BUSHING (H, U only)		1
		★87-085-185	CORD BUSHING (E, K, Z only)		1
	5	★82-192-040	KNOB, B	FX-30	2
	6	★82-798-023	PUSH-BUTTON, MUT	MX-90	3
	7	★87-085-102	NYLON RIVET 3.5-5.5		3
	8	★81-735-056	STEEL CABINET TB		1
	9	★87-085-090	NYLON RIVET 3-6.5 (H only)		2

MECHANICAL PARTS LIST

●※ mark in this part list stows exclusive part.
●★-mark means less required items and availabilities may be limited.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★81-738-028	FRONT CABINET UB Ass'y	※	1	
	1a	★81-740-050	PUSH-KEY POWER B Ass'y		1	
	1b	★81-740-208	C-SPRING, POWER		1	
	2	★87-034-992	AC POWER CORD (H only)		1	
		★87-034-578	AC POWER CORD (U only)		1	
		★82-788-674	AC POWER CORD (E, Z only)		1	
		★87-034-708	AC POWER CORD (K only)		1	
	3	★87-085-184	CORD BUSHING (H, U only)		1	
		★87-085-185	CORD BUSHING (E, K, Z only)		1	
	4	★82-781-206	PLATE NUT	SA-P80	2	
	5	★87-085-102	NYLON RIVET 3.5-5.5		4	
	6	★87-055-057	FOOT B		4	
	7	★87-085-090	NYLON RIVET 3-6.5 (H only)		2	
	8	★82-798-023	PUSH-BUTTON, MUT	MX-90	3	
	9	★81-738-035	STEEL CABINET PB	※	1	

■ACCESSORIES/PACKAGE LIST

GX-120

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	81-739-904	INSTRUCTION BOOKLET	※	1	

BX-120

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★81-738-904	INSTRUCTION BOOKLET	※	1	

AIWA Co., Ltd. Tokyo Japan

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